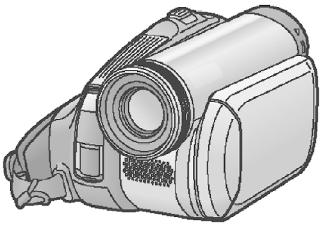
ORDER NO. VM0602001CE

Service Manual

Digital Video Camcorder

NV-GS24EG NV-GS26GK / NV-GS27E NV-GS27EB / NV-GS27EE NV-GS27EF / NV-GS27EG NV-GS27EP / NV-GS27GC NV-GS27GN / NV-GS37E NV-GS37EB / NV-GS37EG NV-GS37EK / NV-GS37EP NV-GS47EE / NV-GS47GC NV-GS57EE / NV-GS57GC NV-GS58GK

Colours
(S)...................Silver Type



PbF
Solder Lead free

SPECIFICATIONS

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⚠ WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

1. Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE
   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

2. Warning

2.1. Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical

ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

   CAUTION :

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a**

carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

2.2. Caution for AC Cord / (VJA0940 type)

2.2.1. Information for your safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

CAUTION

To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

2.2.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362.

Check for the ASRA mark or the BSI mark on the body of the fuse.

ASTA mark	BSI mark

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

If the fitted moulded plug is unsuitable for the socket outlet in your home then the fuse should be removed and the plug cut off and disposed of safety.

There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

2.2.2.1. Important

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

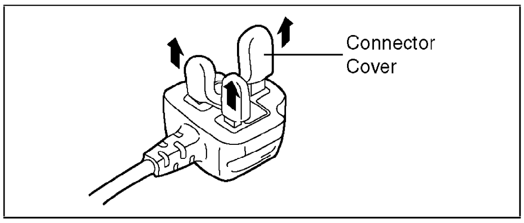
Under no circumstances should either of these wires be connected to the earth terminal of the

three pin plug, marked with the letter E or the Earth Symbol.

Earth Symbol	⏚

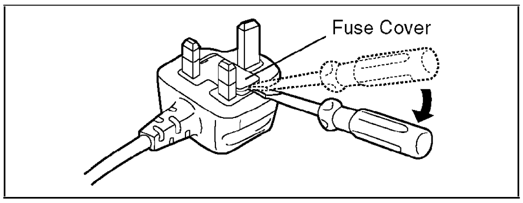
2.2.2.2. Before use

Remove the Connector Cover as follows.

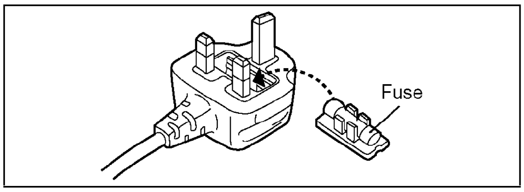


2.2.2.3. How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.

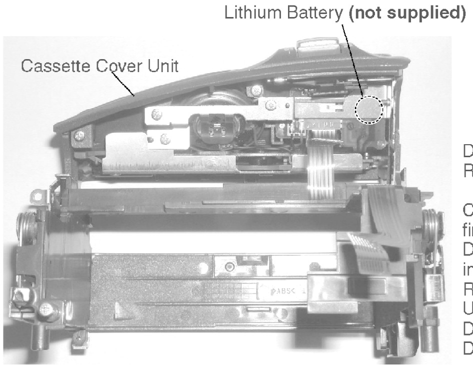


2. Replace the fuse and attach the Fuse cover.



2.3. How to Replace the Lithium Battery

The lithium battery (ML-621S/F9D) is not supplied as a service part and must be replaced as part of the Cassette Cover Unit. (Refer to "Disassembly and Assembly Instructions.")



Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

CAUTION - The battery used in this device may present a risk of fire or chemical burn if mistreated.
Do not recharge, disassemble, heat above 100 °C (212 °F), or incinerate.
Replace battery with Panasonic part number ML-621S/F9D only.
Use of another battery may present a risk of fire or explosion.
Dispose of used battery promptly. Keep away from children.
Do not disassemble and do not dispose of in fire.

NOTE:

This Lithium battery is a critical component. (Type No.: ML-621S/F9D Manufactured by Panasonic.) (Not supplied)
It must never be subjected to excessive heat or discharge.

It must therefore only be fitted in equipment designed specifically for its use.
Replacement batteries must be of the same type and manufacture.
They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.
Do not attempt to re-charge the old battery or re-use it for any other purpose.
It should be disposed of in waste products destined for burial rather than incineration.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

PRECAUTION
Le fait de remplacer incorrectement la pile peut présenter des risques d'explosion.
Remplacer la pile uniquement par une pile identique ou de type équivalent recommandée par le fabricant. Se débarrasser des piles usagées conformément aux instructions du fabricant.

VORSICHT
Bei einer falsch eingesetzten Batterie besteht Explosionsgefahr. Nur mit einer vom Hersteller empfohlenen Batterie vom gleichen Typ ersetzen.
Verbrauchte Batterien beim Fachhändler oder einer Sammelstelle für Sonderstoffe abliefern.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning má kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

3. Service Navigation

3.1. Introduction

This service manual contains technical information which will allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

Note 1:

1. VSK0561 is indicated on the AC Adaptor used in the following models:

NV-GS26GK and NV-GS58GK.
However, the AC Adaptor replacement part number is DE-974HA which should be used when ordering.

2. **VSK0561 is indicated on AC Adaptor used in the following models: NV-GS24EG, NV-GS27E, NV-GS27EB, NV-GS27EE, NV-GS27EF, NV-GS27EG, NV-GS27EP, NV-GS27GC, NV-GS27GN, NV-GS37E, NV-GS37EB, NV-GS37EG, NV-GS37EK, NV-GS37EP, NV-GS47EE, NV-GS47GC, NV-GS57EE, and NV-GS57GC.**
   However, the AC Adaptor replacement part number is DE-974GB which should be used when ordering.

Note 2:

1. **This service manual does not contain the following information, because of the impossibility of servicing at component level.**
   - **A. Schematic Diagram, Block Diagram and P.C.B. layout of Main P.C.B. and Camera P.C.B.**
   - **B. Parts List for individual parts of Main P.C.B. and Cemera P.C.B.**
2. **The following category are recycle module parts. Please send it to Central Repair Center.**
   - **A. *Main P.C.B. (LSEP8330P1/ LSEP8330Q1/ LSEP8330R1/ LSEP8330S1)**
   - **B. *Camera P.C.B. (LSEP8331P1/ LSEP8331Q1/ LSEP8331R1/ LSEP8331S1)**

When a part replacement is required for repairing both Main P.C.B. and Camera P.C.B., replace the assembly parts.

3.2. About Lead Free Solder (PbF)

Distinction of PbF PCB:
PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

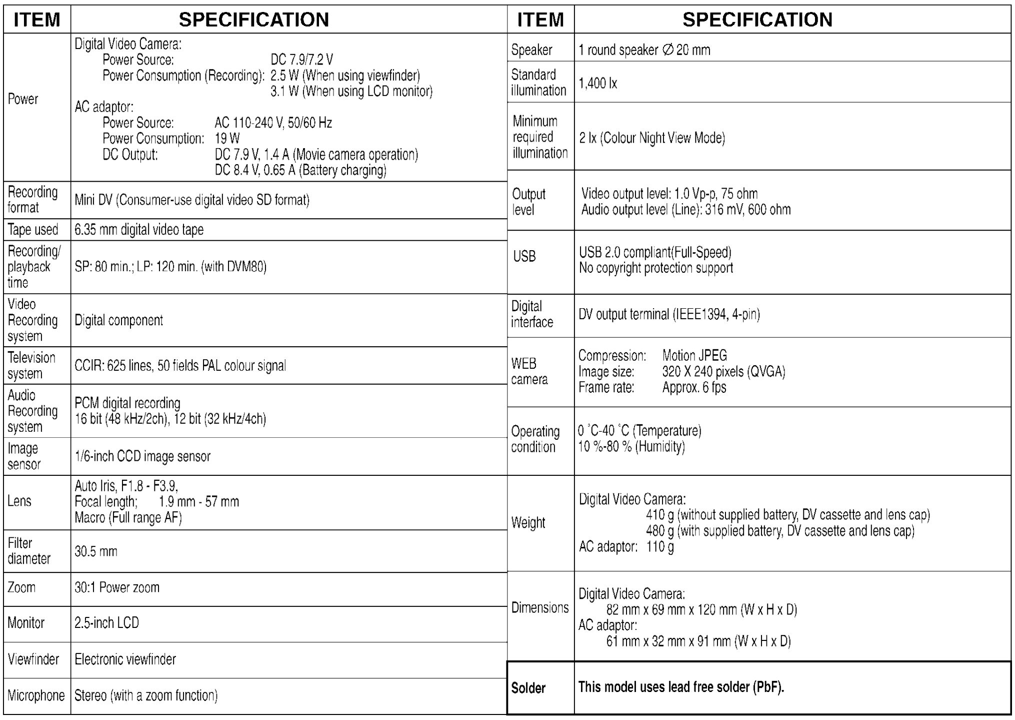
Caution:

- **Pb free solder has a higher melting point than standard solder; Typically the melting point is 50-70°F (30-40°C) higher.**
  Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700±20°F (370±10°C).
- **Pb free solder will tend to splash when heated too high (about**

1100°F/600°C).

When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

4. Specifications



ITEM	SPECIFICATION
Power	Digital Video Camera: Power Source: DC 7.9/7.2 V Power Consumption (Recording): 2.5 W (When using viewfinder) 3.1 W (When using LCD monitor) AC adaptor: Power Source: AC 110-240 V, 50/60 Hz Power Consumption: 19 W DC Output: DC 7.9 V, 1.4 A (Movie camera operation) DC 8.4 V, 0.65 A (Battery charging)
Recording format	Mini DV (Consumer-use digital video SD format)
Tape used	6.35 mm digital video tape
Recording/ playback time	SP: 80 min.; LP: 120 min. (with DVM80)
Video Recording system	Digital component
Television system	CCIR: 625 lines, 50 fields PAL colour signal
Audio Recording system	PCM digital recording 16 bit (48 kHz/2ch), 12 bit (32 kHz/4ch)
Image sensor	1/6-inch CCD image sensor
Lens	Auto Iris, F1.8 - F3.9, Focal length; 1.9 mm - 57 mm Macro (Full range AF)
Filter diameter	30.5 mm
Zoom	30:1 Power zoom
Monitor	2.5-inch LCD
Viewfinder	Electronic viewfinder
Microphone	Stereo (with a zoom function)

ITEM	SPECIFICATION
Speaker	1 round speaker ∅ 20 mm
Standard illumination	1,400 lx
Minimum required illumination	2 lx (Colour Night View Mode)
Output level	Video output level: 1.0 Vp-p, 75 ohm Audio output level (Line): 316 mV, 600 ohm
USB	USB 2.0 compliant(Full-Speed) No copyright protection support
Digital interface	DV output terminal (IEEE1394, 4-pin)
WEB camera	Compression: Motion JPEG Image size: 320 X 240 pixels (QVGA) Frame rate: Approx. 6 fps
Operating condition	0 °C-40 °C (Temperature) 10 %-80 % (Humidity)
Weight	Digital Video Camera: 410 g (without supplied battery, DV cassette and lens cap) 480 g (with supplied battery, DV cassette and lens cap) AC adaptor: 110 g
Dimensions	Digital Video Camera: 82 mm x 69 mm x 120 mm (W x H x D) AC adaptor: 61 mm x 32 mm x 91 mm (W x H x D)
Solder	**This model uses lead free solder (PbF).**

5. Location of Controls and Components

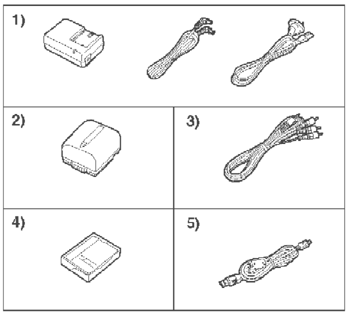
Followings are the Operation Guide for NV-GS27GN as a sample.

For other models, refer to each original Operation Guide.

Before using

Accessories

The followings are the accessories supplied with this product.



1) **AC adaptor, DC input lead, AC mains lead** *-7-*
2) **Battery pack** *-7-*
3) **AV cable** *-30-*
4) **Digital video head cleaner** *-39-*
5) **USB cable**

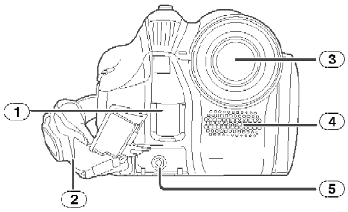
Optional

1) AC adaptor (VW-AD11GN)
2) Battery pack (lithium/CGR-DU06/640mAh)
3) Battery pack (lithium/CGA-DU07/680mAh)
4) Battery pack (lithium/CGA-DU12/1150mAh)
5) Battery pack (lithium/CGA-DU14/1360mAh)
6) Battery pack (lithium/CGA-DU21/2040mAh)
7) Wide conversion lens (VW-LW3007E)
8) Tele conversion lens (VW-LT3014E)
9) ND filter (VW-LND30E)
10) MC protector (VW-LMC30E)
11) Tripod (VW-CT45E)
12) DV cable (VW-CD1E)

- Some optional accessories may not be available in some countries.

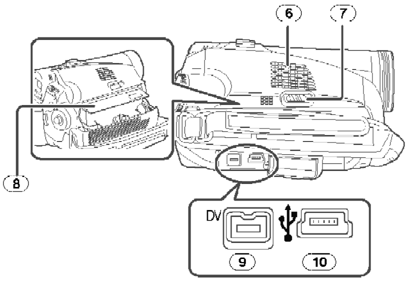
Parts identification and handling

■ Camera

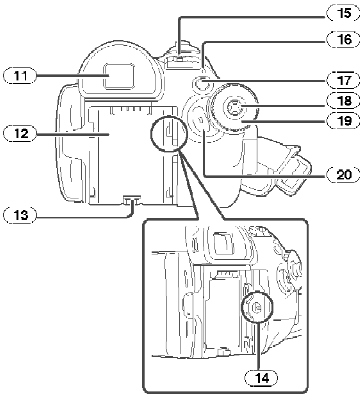


① **White balance sensor** *-26-*
② **Grip belt** *-6-*
③ **Lens**
- Fit the MC protector (VW-LMC30E; optional), the ND filter (VW-LND30E; optional), the tele conversion lens (VW-LT3014E; optional) or the wide conversion lens (VW-LW3007E; optional) in front of the lens. Do not fit the other accessories. (except for the lens cap)

④ **Microphone (built-in, stereo)** *-20-*, *-23-*
⑤ **Audio-video output terminal [A/V]** *-30-*



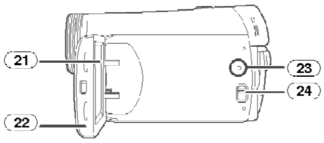
⑥ **Speaker** *-28-*
⑦ **Cassette eject lever [OPEN/EJECT]** *-12-*
⑧ **Cassette holder** *-12-*
⑨ **DV terminal [DV]** *-30-*, *-30-*
⑩ **USB terminal [ψ]**



⑪ **Viewfinder** *-10-, -41-*

> Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Viewfinder screen. However, this is not a malfunction and does not affect the recorded picture.

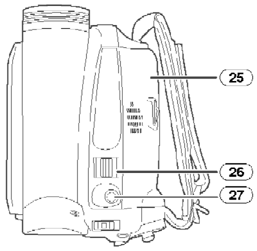
⑫ **Battery holder** *-7-*
⑬ **Battery release lever [BATTERY RELEASE]** *-7-*
⑭ **DC input terminal [DC/C.C.IN]** *-7-*
⑮ **Power switch [OFF/ON]** *-8-*
⑯ **Status indicator** *-8-*
⑰ **Menu button [MENU]** *-15-*
⑱ **Joystick** *-13-*
⑲ **Mode dial** *-13-*
⑳ **Recording start/stop button** *-18-*



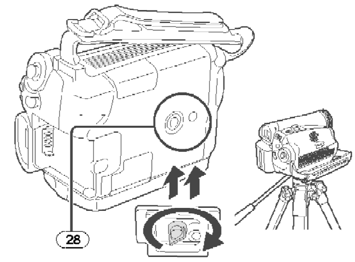
㉑ **LCD monitor** *-10-, -41-*

> Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD monitor screen. However, this is not a malfunction and does not affect the recorded picture.

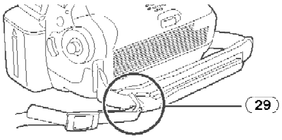
㉒ **LCD monitor open part [OPEN]** *-10-*
㉓ **Reset button [RESET]** *-35-, -38-*
㉔ **Mode select switch [AUTO/MANUAL/ FOCUS]** *-17-, -24-, -27-*



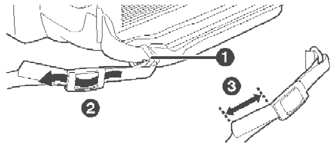
㉕ **Cassette cover** *-12-*
㉖ **Zoom lever [W/T]** *-20-*
Volume lever [−VOLUME+] *-28-*
㉗ **Photoshot button [PHOTO SHOT]** *-19-*



㉘ **Tripod receptacle**
This is a hole for attaching the camera to optional tripod/VW-CT45E. (Please carefully read the operating instructions for how to attach the tripod to the camera.)



㉙ **Shoulder strap fixture**

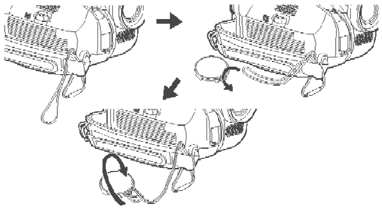


- Put the strap (optional) through the fixture ❶ and through the stopper ❷ so it will not come off. Extend part ❸ by at least 2 cm.
- Fit the other end of the belt similarly.

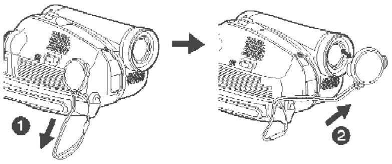
Fitting the lens cap

Fit the lens cap to protect the surface of the lens.

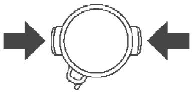
1 **The lens cap and lens cap cord comes preattached to the grip belt.**
Pass the end of the lens cap cord through the attached eye on the lens cap. Then pass the lens cap through the loop made by itself and pull tight.



- When not using the lens cap, pull the lens cap cord in the direction of the arrow. ❶
- When you are not recording, be sure to cover the lens with the lens cap for protection. ❷



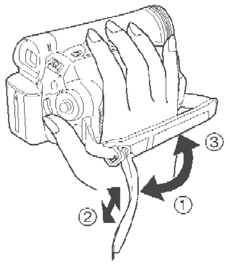
- When you remove the lens cap, press the knobs firmly.



The grip belt

Adjust the belt length so it fits your hand.

1 **Adjust the belt length.**



① Flip the belt.
② Adjust the length.
③ Fix the belt.

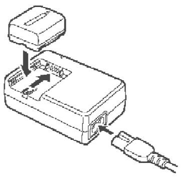
Power supply

■ Charging the battery

When this product is purchased, the battery is not charged. Charge the battery before using this product.

- Battery charging time (-8-)
- We recommend using Panasonic batteries.
- If you use other batteries, we cannot guarantee the quality of this product.
- If the DC input lead is connected to the AC adaptor, then the battery will not get charged. Remove the DC input lead from the AC adaptor.

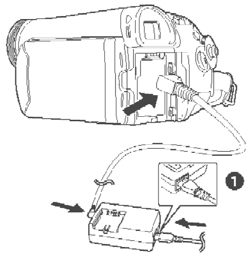
1. **Connect the AC mains lead to the AC adaptor and the AC mains socket.**
2. **Put the battery on the battery mount by aligning the mark, and then securely plug it in.**



■ Charging lamp

Lights up:	Charging
Goes off:	Charging completed
Flashing:	The battery is over discharged (discharged excessively). In a while, the lamp will light up and normal charging will start. When the battery temperature is excessively high or low, the [CHARGE] lamp flashes and the charging time will be longer than normal.

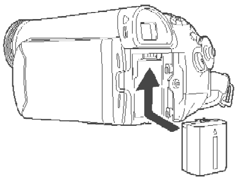
■ Connecting to the AC outlet



1. **Connect the AC mains lead to the AC adaptor and the AC mains socket.**
2. **Connect the DC input lead to the AC adaptor.**
3. **Connect the DC input lead to this product.**
   - The output plug of the AC mains lead is not completely connected to the AC adaptor socket. As shown in ❶, there is a gap.
   - Do not use the power cord for other equipment since the power cord is exclusively designed for the movie camera. Or do not use the power cord of other equipment for the movie camera.

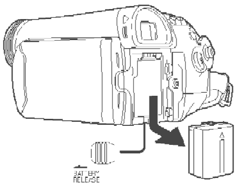
■ Fitting the battery

Push the battery against the battery holder and slide it until it clicks.



■ Removing the battery

While sliding the [BATTERY RELEASE] lever, slide the battery to remove it.



- Hold the battery with your hand so it does not fall.
- Before removing the battery, be sure to set the [OFF/ON] switch to [OFF].

Charging time and recordable time

The times shown in the table below show the times at a temperature of 25 °C and a humidity of 60%. This is just a guide. If the temperature is higher or lower than the specified value, the charging time will become longer.

Supplied battery/ CGR-DU06 (7.2 V/ 640 mAh)	Ⓐ	1 h 40 min
	Ⓑ	1 h 50 min (1 h 25 min)
	Ⓒ	55 min (45 min)
CGA-DU12 (7.2 V/ 1150 mAh)	Ⓐ	2 h 25 min
	Ⓑ	3 h 15 min (2 h 40 min)
	Ⓒ	1 h 40 min (1 h 20 min)
CGA-DU14 (7.2 V/ 1360 mAh)	Ⓐ	2 h 45 min
	Ⓑ	3 h 50 min (3 h)
	Ⓒ	1 h 55 min (1 h 30 min)
CGA-DU21 (7.2 V/ 2040 mAh)	Ⓐ	3 h 55 min
	Ⓑ	5 h 45 min (4 h 30 min)
	Ⓒ	2 h 55 min (2 h 15 min)
CGA-DU07 (7.2 V/ 680 mAh)	Ⓐ	1 h 30 min
	Ⓑ	1 h 55 min (1 h 30 min)
	Ⓒ	1 h (45 min)

Ⓐ Charging time
Ⓑ Maximum continuously recordable time
Ⓒ Intermittent recordable time

(The intermittent recordable time refers to recordable time when the recording and stopping operations are repeated.)

“1 h 40 min” indicates 1 hour 40 minutes.

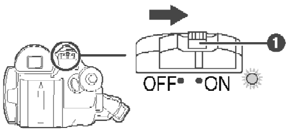
- The battery CGR-DU06 is supplied.
- The times shown in the table are rough estimates. The times indicate the recordable times when the viewfinder is used. The times in parentheses indicate the recordable times when the LCD monitor is used.
- We recommend the Battery Pack CGA-DU12, CGA-DU14 and CGA-DU21 for long time recording (2 hours or more for continuous recording, 1 hour or more for intermittent recording).
- The recordable time will become shorter in the following cases:
  - When you use both the viewfinder and the LCD monitor simultaneously while rotating the LCD monitor frontward to record yourself etc.
- The batteries heat up after use or charging. The main unit of the movie camera being used will also heat up. This is normal.
- Along with the reduction of the battery capacity, the display will change: ▱▱▱ → ▰▱▱ → ▰▰▱ → ▰▰◿ → ▰▰▰. If the battery discharges, then ▰▰◿ (▰▰▰) will flash.

Turning the camera on

When the camera is turned on with the lens cap fitted, the automatic white balance adjustment may not function properly. Please turn the camera on after removing the lens cap.

■ How to turn on the power

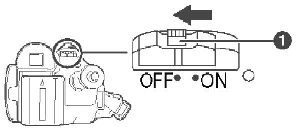
1 While pressing the button ❶, set the [OFF/ON] switch to [ON].



- The status indicator lights red and the power turns on.
- If the LCD monitor is closed and the viewfinder is retracted while the [OFF/ON] switch is set to [ON] in the Tape Recording Mode, the power turn off.

■ How to turn off the power

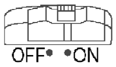
1 While pressing the button ❶, set the [OFF/ON] switch to [OFF].



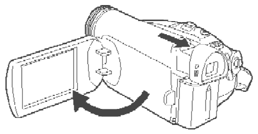
- **Set the [OFF/ON] switch to [OFF] when not using the camera.**
- The status indicator goes off when the power turns off.

How to turn the power on and off with the LCD monitor/viewfinder

When the power switch is set to [ON], the power can be turned on and off with the LCD monitor and the viewfinder when the unit is in Tape Recording Mode.

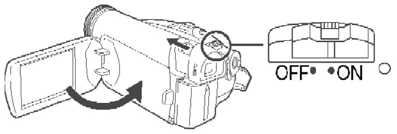


1 **Open the LCD monitor out or extend the viewfinder to use.** (*-10-*)



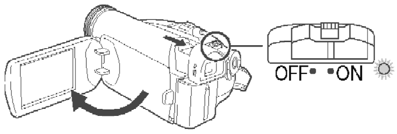
- The LCD monitor or the viewfinder will be activated.

2 **Close the LCD monitor and retract the viewfinder.**



- The power will not turn off unless the LCD monitor is closed and the viewfinder is retracted.
- The status indicator automatically goes off and the power turns off. (If quick start is set to [ON] (*-11-*), the unit goes into quick start standby mode and the status indicator lights green.)
- The power does not turn off even if the LCD monitor is closed and the viewfinder is retracted while recording on a tape.

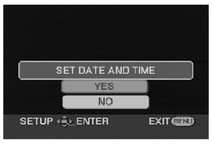
3 **Open the LCD monitor or extend the viewfinder to turn the power on and use the movie camera again.**



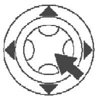
- The status indicator lights up and the power turns on.

Setting date and time

When the movie camera is turned on for the first time, [SET DATE AND TIME] will appear.



SET DATE AND TIME
YES
NO
SETUP ENTER EXIT

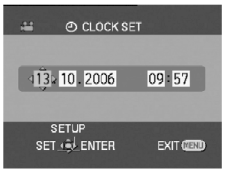


- Select [YES] and press the centre of the joystick. Do steps 2 and 3 below to set the date/time.

If the screen shows the incorrect date/time, then adjust it.

- **Set to Tape Recording Mode.**

1 **Set [BASIC] >> [CLOCK SET] >> [YES].** (*-15-*)



CLOCK SET
13. 10. 2006 09:57
SETUP
SET ENTER EXIT

2 **Move the joystick left or right in order to select the item to be set. Then move the joystick up or down to set the desired value.**
- The year will change as follows:
  2000, 2001, ..., 2089, 2000, ...
- The 24-hour clock is used.

3 **Press the joystick to determine the setting.**
- The clock function starts at [00] seconds.

About date/time

- The date and time function are driven by a built-in lithium battery.
- Make sure to check the time before recording because the built-in clock is not very accurate.

Recharging the built-in lithium battery

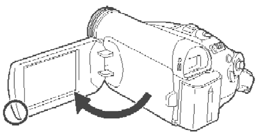
- If [⊘] or [--] is appears when the camera is turned on, then the built-in lithium battery has run down. Use the steps below to charge the battery. When turn on the power for the first time after charging, [SET DATE AND TIME] will appear. Select [YES] and set the date and time. Connect the AC adaptor to the camera or attach the battery to the camera, and the built-in lithium battery will be recharged. Leave the camera as is for approx. 24 hours, and the battery will drive the date and time for approx. 6 months. (Even if the [OFF/ON] switch is set to [OFF], the battery is still being recharged.)

WARNING
THE LITHIUM BATTERY IN THIS UNIT MUST ONLY BE REPLACED BY QUALIFIED PERSONNEL. IF THIS IS NECESSARY, CONTACT THE PANASONIC CUSTOMER CARE CENTRE ON 132600 FOR YOUR NEAREST AUTHORIZED SERVICE CENTRE.

Using the LCD monitor

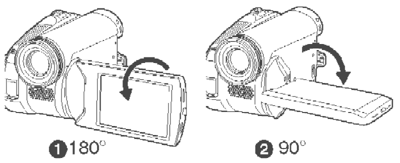
You can record the image while viewing it on the opened LCD monitor.

1 **Put a finger on the LCD monitor open part and open the LCD monitor out in the direction of the arrow.**



- It can open up to 90°.

2 **Adjust the angle of the LCD monitor as you prefer.**



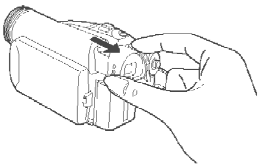
- It can rotate up to 180° ❶ towards the lens or 90° ❷ towards the viewfinder.

- The brightness and colour level of the LCD monitor can be adjusted from the menu.
- If it is forcibly opened or rotated, the camera may be damaged or fail.
- If the LCD monitor is rotated by 180° towards the lens and the viewfinder is extended (when recording yourself), the LCD monitor and the viewfinder simultaneously light.

Using the viewfinder

Extending the viewfinder

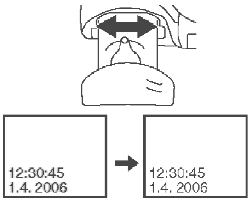
1 **Pull out the viewfinder. Extend it by pinching the extension knob.**



- The viewfinder will be activated. (If the LCD monitor is opened, the viewfinder will be deactivated.)

Adjusting the field of view

1 **Adjust the focus by sliding the eyepiece corrector knob.**



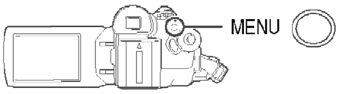
- You can adjust the brightness of the viewfinder from the menu.

Quick start

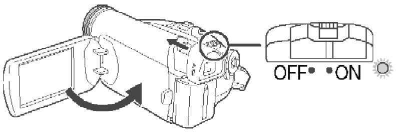
When quick start is on the battery power is still being consumed, even when the LCD monitor and the viewfinder are closed.
The camera will resume recording/pause mode about 1.7 seconds after the LCD monitor or the viewfinder is reopened.

- Please note in quick start mode approximately half the pause recording power is being consumed. Using quick start mode will reduce the battery recording/playback time.
- This is only activated in the following cases.
  - A tape is inserted, while the Tape Recording Mode is set.
- **Set to Tape Recording Mode.**

1 **Set [SETUP] >> [QUICK START] >> [ON].** (-*15*-)

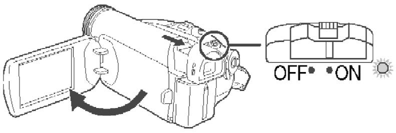


2 **While the [OFF/ON] switch is still set to [ON], close the LCD monitor and retract the viewfinder.**



- The status indicator lights green and the unit goes into quick start standby mode.
- The movie camera will not go into quick start standby unless the LCD monitor is closed and the viewfinder is retracted.

3 **Open the LCD monitor or extend the viewfinder.**



- The status indicator lights red and the camera is put into recording pause approx. 1.7 seconds after it is turned on.

■ To cancel Quick Start

1 **Set [SETUP] >> [QUICK START] >> [OFF].** (-*15*-)

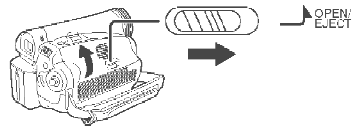
- If the [OFF/ON] switch is set to [OFF] while the unit is in quick start standby, the power turns off.
- If the standby continues for approx. 30 minutes, then the status indicator will go off and the camera will be completely turned off.

- If the Mode dial is moved or the battery is removed in quick start standby mode, quick start is cancelled and the power turns off.
- When the camera is quick-started with the white balance on automatic, it may take some time until the white balance is adjusted if the scene being recorded has a light source different from the scene last recorded. (When the colour night view function is used, however, the white balance of the scene last recorded is retained.)
- If the power is turned on in quick start standby, the zoom magnification becomes 5× and the picture size may differ from what it was before quick start standby.
- If [POWER SAVE] (-*32*-) is set to [5 MINUTES] and the unit automatically goes into quick start standby mode, set the [OFF/ON] switch to [OFF], then to [ON] again. Also, close the LCD monitor and retract the viewfinder and then open the LCD monitor or extend the viewfinder again.
- When using the AC adaptor, quick start can be used even if a tape is not inserted.

Inserting/removing a cassette

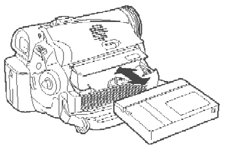
1 **Fit the AC adaptor or the battery and turn on the power.**

2 **Slide the [OPEN/EJECT] lever and open the cassette cover.**



- When the cover is fully opened, the cassette holder will come out.

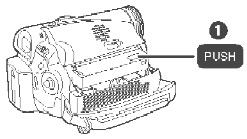
3 **After the cassette holder is opened, insert/ remove the cassette.**



- When inserting a cassette, orient it as shown in the figure, and then securely insert it as far as it goes.
- When removing, pull it straight out.

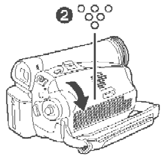
4 **Push the [PUSH] mark ❶ in order to close the cassette holder.**

- The cassette holder is housed.



Caution:
Take care not to trap your fingers under the cassette holder when closing it.

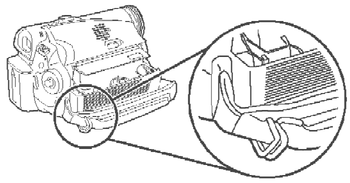
5 **Only after the cassette holder is completely housed, close the cassette cover by pressing the mark ❷.**



- When inserting a previously recorded cassette, use the blank search function to find the position where you want to continue recording. If you are overwriting a previously recorded cassette, be sure to find the position where you want to continue recording.
- Close the cassette cover tightly.
- When closing the cassette cover, do not get anything, such as a cable, caught in the cover.
- After use, be sure to rewind the cassette completely, remove it and put it in a case. Store the case in an upright position. (-40-)
- If the indicator of the condensation does not display on the LCD monitor and/or the viewfinder and you notice condensation on the lens or the main unit, do not open the cassette cover otherwise condensation may be formed on the heads or the cassette tape. (-38-)

■ When the cassette holder does not come out

- Close the cassette cover completely, and then open it again completely.
- Check if the battery has run down.
- Check if the cassette compartment cover is in contact with grip belt as shown below. If so, be sure the grip belt stays clear of the cover when opening.

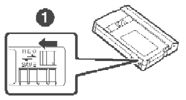


■ When the cassette holder cannot be housed

- Set the [OFF/ON] switch to [OFF], then to [ON] again.
- Check if the battery has run down.

■ Accidental erasure prevention

If the accidental erasure prevention slider ❶ of a cassette is opened (slide in the direction of the [SAVE] arrow), the cassette cannot be recorded. When recording, close the accidental erasure prevention slider of the cassette (slide in the direction of the [REC] arrow).

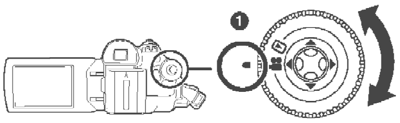


Selecting a mode

Rotate the mode dial to select the desired mode.

1 Rotate the mode dial.

- Set your desired mode to ❶.



🎥 : TAPE RECORDING MODE

Use this when you record the image on a tape.

▶ : TAPE PLAYBACK MODE

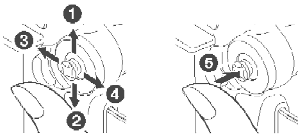
Use this to play back a tape.

How to use the joystick

■ Basic joystick operations

Operations on the menu screen and selection of files to be played back on the multi-image display

Move the joystick up, down, left or right to select an item or file, and then push in the centre to set it.



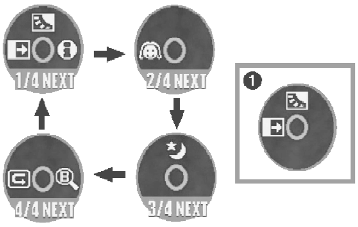
❶	Select by moving up.
❷	Select by moving down.
❸	Select by moving left.
❹	Select by moving right.
❺	Determine by pushing the centre.

■ Joystick and screen display

Push the centre of the joystick, and icons will be displayed on the screen. Each time the joystick is moved down, the indication changes.

(In the Tape Playback Mode, the icons will be automatically displayed on the screen.)

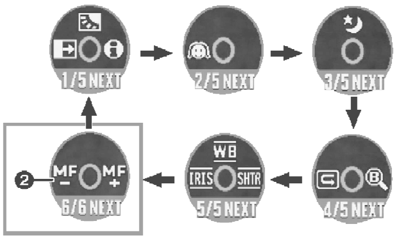
1) Tape Recording Mode ([AUTO/MANUAL/FOCUS] switch is set to [AUTO])

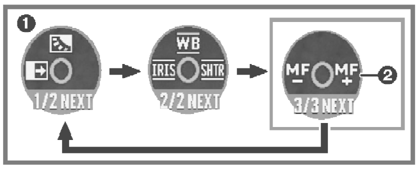


1/4	◀	⇥	Fade	-22-
	▲	▨	Backlight compensation	-21-
	▶	ⓘ	Help mode	-14-
2/4	◀	☺	Soft skin mode	-22-
3/4	▲	☾	Colour night view	-21-
4/4	◀	⊟	Recording check	-18-
	▶	Ⓑ	Blank search	-19-

- ❶ is displayed while recording on a tape.

2) Tape Recording Mode ([AUTO/MANUAL/FOCUS] switch is set to [MANUAL])

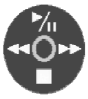

1/5 NEXT
2/5 NEXT
3/5 NEXT
4/5 NEXT
WB
IRIS
SHTR
5/5 NEXT
❷
MF−
MF+
6/6 NEXT


❶
1/2 NEXT
WB
IRIS
SHTR
2/2 NEXT
MF−
MF+
❷
3/3 NEXT

5/5	◀	IRIS	Iris or gain value	-27-
	▲	WB	White balance	-25-
	▶	SHTR	Shutter speed	-27-
6/6	◀	MF−	Manual focus adjustment (When set to [FOCUS])	-26-
	▶	MF+		

- ❶ is displayed while recording on a tape.
- ❷ is displayed only when the [AUTO/MANUAL/FOCUS] switch is set to [FOCUS].

3) Tape Playback Mode



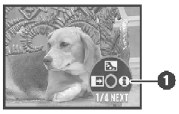
	▲	▶/II	Playback/pause	-28-
	▼	■	Stop	-28-
	◀	◀◀	Rewind (review playback)	-28-
	▶	▶▶	Fast forward (cue playback)	-28-

Help mode

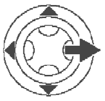
Select an icon for an explanation of the function.

- **Set to Tape Recording Mode.**

1 Press the joystick to display the icon during the recording pause. Move the joystick down until icon ❶ appears.

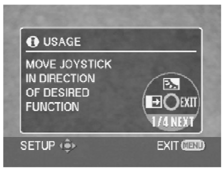


2 Move the joystick right to select the Help mode icon [ⓘ].



- The help mode explains the operation icons displayed when the [AUTO/MANUAL/FOCUS] switch is set to [AUTO] in Tape Recording Mode.

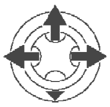
3 Move the joystick up, left, or right to select the desired icon.



ⓘ USAGE

MOVE JOYSTICK IN DIRECTION OF DESIRED FUNCTION

EXIT
1/4 NEXT
SETUP
EXIT MENU



- An explanation of the selected icon is displayed on the screen.
- Each time the joystick is moved down, the indication changes.

■ To exit the Help mode

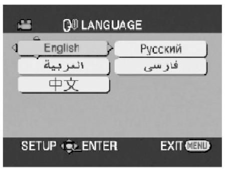
Select [EXIT] or press the [MENU] button.

- When the Help mode is used, functions cannot be set.

Switching the language

You can switch the language on the screen display or the menu screen.

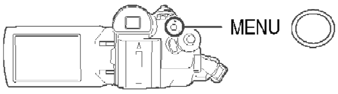
1 Set [LANGUAGE] >> select the desired language.


LANGUAGE
English
Русский
العربية
فارسی
中文
SETUP ENTER
EXIT MENU

Using the menu screen

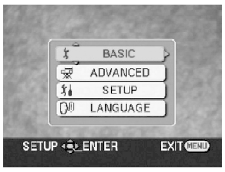
For each individual menu, please refer to *-31-*.

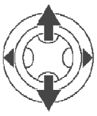
1 Press the [MENU] button.



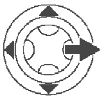
- The menu corresponding to the mode selected by the mode dial is displayed.
- Do not switch the mode dial when the menu is displayed.

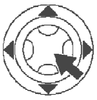
2 Move the joystick up or down in order to select the top menu.


BASIC
ADVANCED
SETUP
LANGUAGE
SETUP ENTER
EXIT MENU

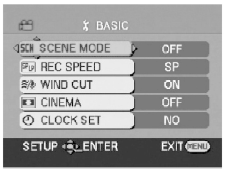


3 Move the joystick right or press it to set the selection.





4 Move the joystick up or down in order to select the sub-menu.



BASIC

SCENE MODE OFF

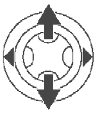
REC SPEED SP

WIND CUT ON

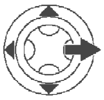
CINEMA OFF

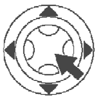
CLOCK SET NO

SETUP ENTER
EXIT MENU

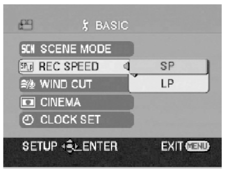


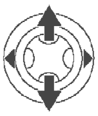
5 Move the joystick right or press it to set the selection.



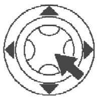


6 Move the joystick up or down in order to select the item to be set.


BASIC
SCENE MODE
REC SPEED
WIND CUT
CINEMA
CLOCK SET
SP
LP
SETUP ENTER
EXIT MENU



7 Press the joystick to determine the setting.

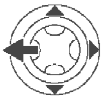


■ To exit the menu screen

Press the [MENU] button.

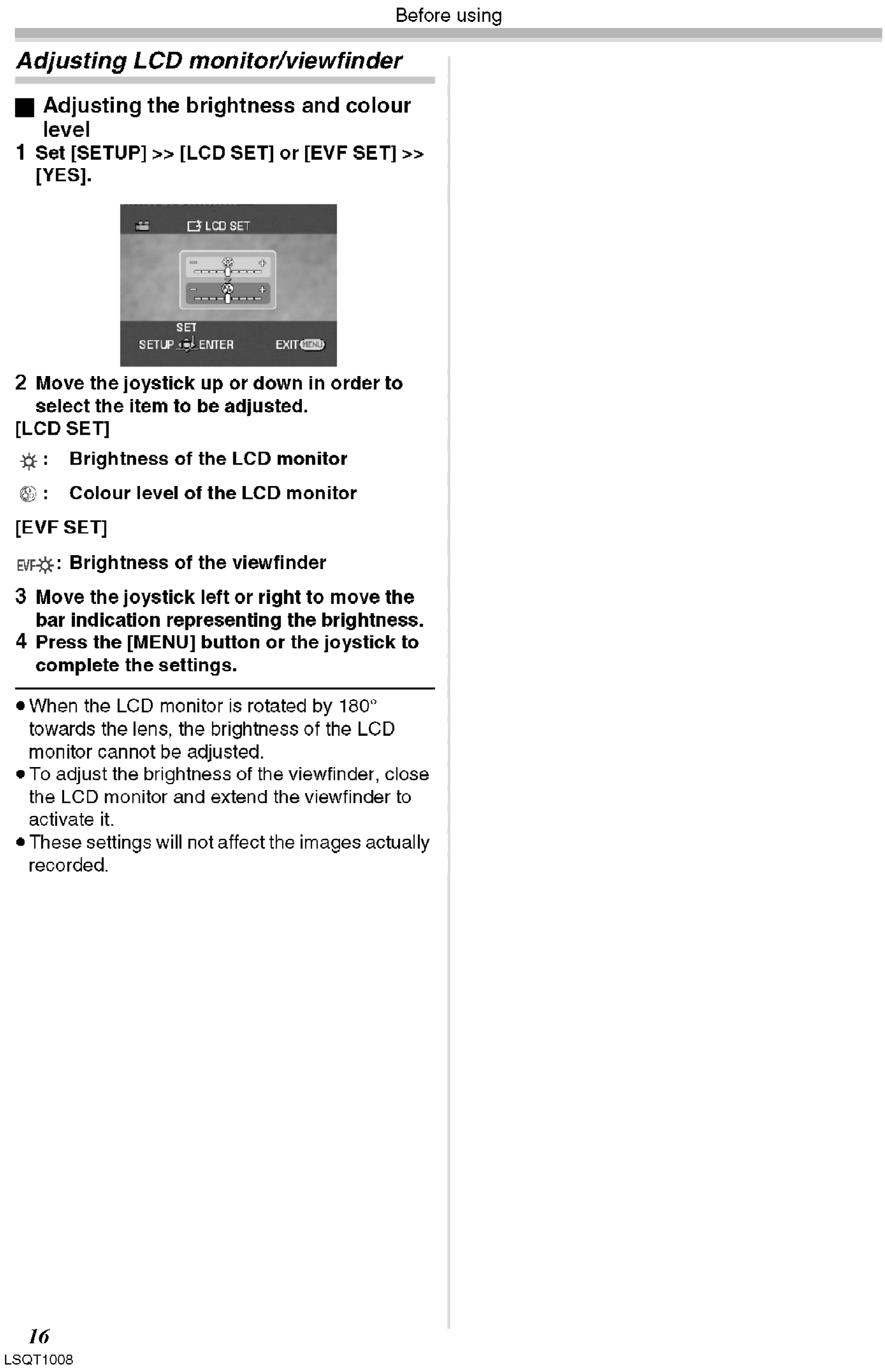
■ To get back to the previous screen

Move the joystick left.



■ About the menu setting

- The menu is not displayed while recording on a tape. Also, you cannot record on a tape while the menu is displayed.



Before using

Adjusting LCD monitor/viewfinder

■ Adjusting the brightness and colour level

1 **Set [SETUP] >> [LCD SET] or [EVF SET] >> [YES].**

2 **Move the joystick up or down in order to select the item to be adjusted.**

[LCD SET]

☼ : **Brightness of the LCD monitor**

◐ : **Colour level of the LCD monitor**

[EVF SET]

EVF☼: **Brightness of the viewfinder**

3 **Move the joystick left or right to move the bar indication representing the brightness.**

4 **Press the [MENU] button or the joystick to complete the settings.**

- When the LCD monitor is rotated by 180° towards the lens, the brightness of the LCD monitor cannot be adjusted.
- To adjust the brightness of the viewfinder, close the LCD monitor and extend the viewfinder to activate it.
- These settings will not affect the images actually recorded.

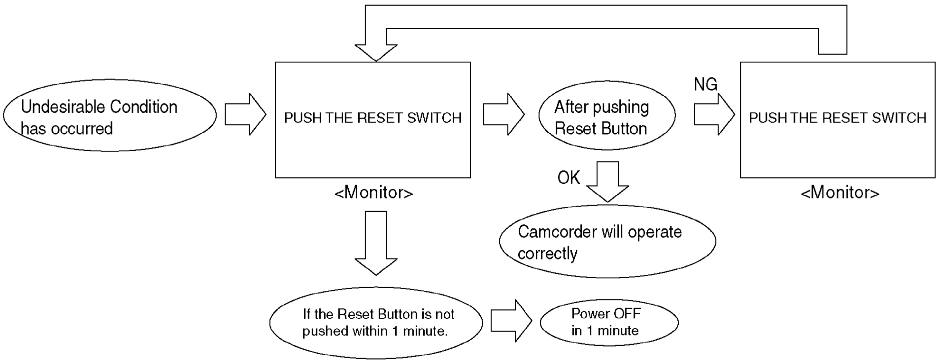
16
LSQT1008

6. Service Mode

6.1. Error Display

"PUSH THE RESET SWITCH" is displayed automatically on the EVF or the LCD Monitor when an undesirable condition has occurred.

Fig. 1


Undesirable Condition has occurred
PUSH THE RESET SWITCH
<Monitor>
After pushing Reset Button
NG
PUSH THE RESET SWITCH
<Monitor>
OK
Camcorder will operate correctly
If the Reset Button is not pushed within 1 minute.
Power OFF in 1 minute

Note:

When "PUSH THE RESET SWITCH" is displayed repeatedly, service is required. Check the Error Code which is listed in the Service Menu.

6.2. Service Menu

When abnormal detection contents are confirmed, do the following operation. Automatic diagnosis code will bedisplayed. (Service Menu)

To enter the Service Menu

Push the [PHOTO SHOT], [JOYSTICK CONTROL LEFT] and [RECORDING START/STOP] simultaneously for 3 seconds (with no SD Card inserted).

Note:

If a Disc or SD Card is inserted, the above operation will not work. This operation displays the following Service Menu items.

To select the Item

1. **Set to Service Menu.**
2. **Press the [JOYSTICK CONTROL UP/DOWN] to select item [3].**
3. **Press the [JOYSTICK CONTROL RIGHT] to display [YES/NO] screen.**
4. **Press the [JOYSTICK CONTROL UP/DOWN] to select [YES].**
5. **Press the [JOYSTICK CONTROL CENTER].**

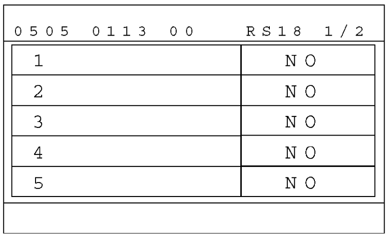
Note:

Only perform items 3 in the Service Menu.

To exit the Service Menu

Unplug the AC Cord.

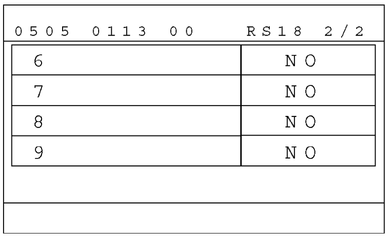
Fig. 2



```
0505  0113  00     RS18  1/2
1                  NO
2                  NO
3                  NO
4                  NO
5                  NO
```

<Service Menu 1/2>

Item [1]: Factory setting (reset)
Item [2]: Life Mode
} **ignore**
Item [3]: Error/Lock Code/elapsed time
Item [4]: Envelope/HID
Item [5]: BER
} **ignore**

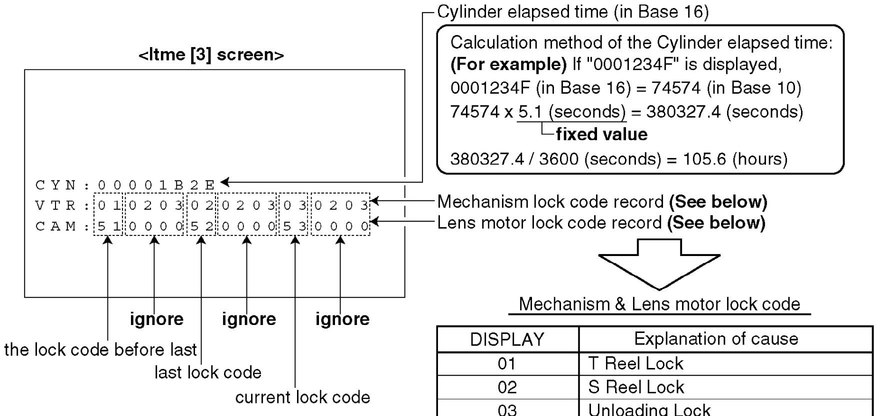


```
0505  0113  00     RS18  2/2
6                  NO
7                  NO
8                  NO
9                  NO
```

<Service Menu 2/2>

Item [6]: AD 24ch data
Item [7]: Not used
Item [8]: Resets the Cylinder elapsed time
Item [9]: Not used
} **ignore**

<Itme [3] screen>



```
CYN:00001B2E
VTR:01 0203 02 0203 03 0203
CAM:51 0000 52 0000 53 0000
```

Cylinder elapsed time (in Base 16)

Calculation method of the Cylinder elapsed time:
(For example) If "0001234F" is displayed,
0001234F (in Base 16) = 74574 (in Base 10)
74574 x 5.1 (seconds) = 380327.4 (seconds)
fixed value
380327.4 / 3600 (seconds) = 105.6 (hours)

Mechanism lock code record **(See below)**
Lens motor lock code record **(See below)**

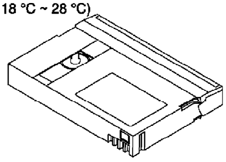
Mechanism & Lens motor lock code

DISPLAY	Explanation of cause
01	T Reel Lock
02	S Reel Lock
03	Unloading Lock
04	Loading Lock
05	Cylinder Lock
51	Zoom Motor Lock
52	Focus Motor Lock

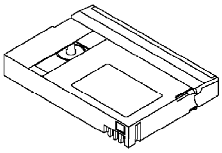
7. Service Fixture & Tools

7.1. Service Fixture and Tools

Color Bar Standard Tape **VFM3110EDS**
(Keeping condition: Keep at 18 °C ~ 28 °C)

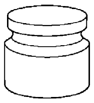


DVC Head Cleaning Tape **VFK1451**

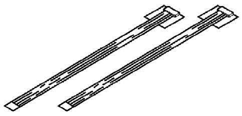


Plier for Non ZIF Connector **LSVQ0028**

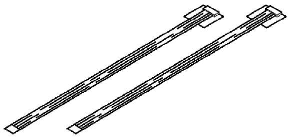
Grease **LSUQ0050**



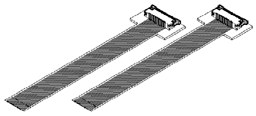
Extension Cable 8P **LSUA0019**
(2 pcs)



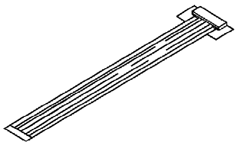
Extension Cable 10P **LSUA0016**
(2 pcs)



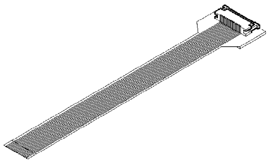
Extension Cable 18P **LSUA0017**
(2 pcs)



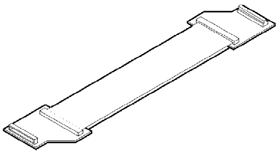
Extension Cable 22P **VUVS0012**



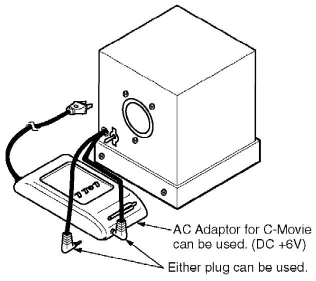
Extension Cable 28P **VUVS0015**



Extension Cable 90P **LSUA0060**



Light Box and AC Adaptor **VFK1164LBX1**

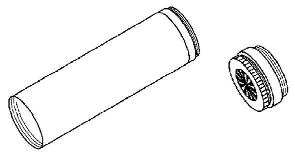


AC Adaptor for C-Movie can be used. (DC +6V)

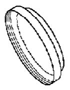
Either plug can be used.

(AC Adaptor is not supplied)

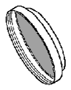
Infinity Lens (with Focus Chart) **VFK1164TCM02**



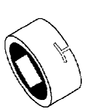
27mm Ring **VFK1164TAR27**



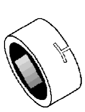
Color Conversion Filter (C14) **VFK1164TFCT2**



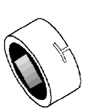
White Chart **VFK1164TFWC2**



Color Bar Chart **VFK1164TFCB2**



Gray Scale Chart **VFK1164TFGS2**



Post Height Adjustment Fixture **VFK1899**

7.2. Service Position

7.2.1. Extension Cables for Service Position

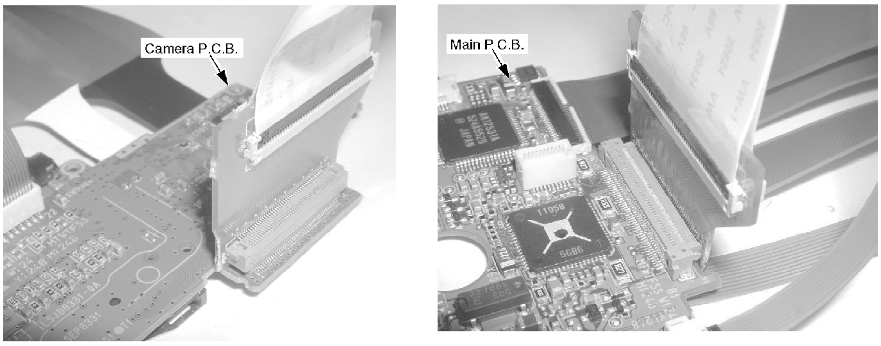
Using the following Extension Cables, place the unit as shown for check and service.

NO.	PART NUMBER	PART NAME	CONNECTION
①	LSUA0016	10Pin Extension Cable	FP7001 on Main P.C.B. ~ Zoom Switch F.P.C. of Cassette Cover Unit
②	VUVS0012	22Pin Extension Cable	FP9902 on Camera P.C.B. ~ EVF F.P.C. on EVF Unit **(For models with Color EVF)**
③	LSUA0060	90Pin Extension Cable	B1 on Main P.C.B. ~ B9901 on Camera P.C.B.
④	VUVS0015	28Pin Extension Cable	FP8 on Main P.C.B. ~ LCD F.P.C. on LCD Unit
⑤	LSUA0017	18Pin Extension Cable	FP4 on Main P.C.B. ~ Capstan F.P.C. on Mechanism Chassis Ass'y
⑥	LSUA0017	18Pin Extension Cable	FP2 on Main P.C.B. ~ Sub Mechanism F.P.C. on Mechanism Chassis Ass'y
⑦	LSUA0016	10Pin Extension Cable	FP3 on Main P.C.B. ~ Cylinder F.P.C. on Mechanism Chassis Ass'y
⑧	LSUA0019	8Pin Extension Cable	FP1 on Main P.C.B. ~ Mechanism F.P.C. on Mechanism Chassis Ass'y
⑨	LSUA0019	8Pin Extension Cable	FP5 on Main P.C.B. ~ Head Amp F.P.C. on Mechanism Chassis Ass'y

Note:

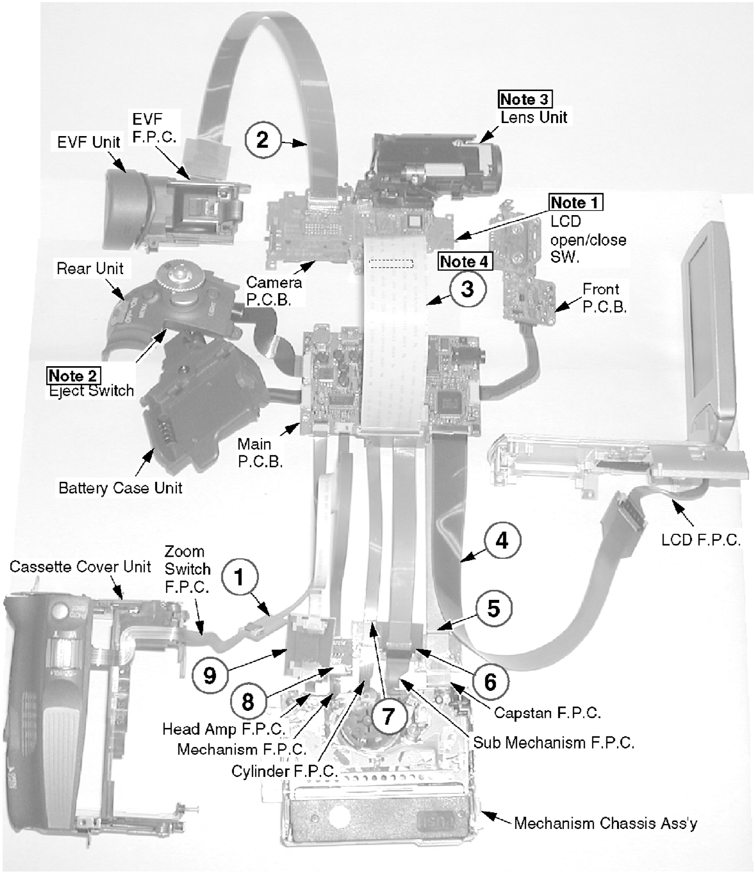
1. **The LCD open/close Switch is for changing between LCD Display and EVF Display. When turning on EVF Display, place some paper or tape, etc. on LCD open/close Switch so that this Switch stays ON.**
2. **To eject the Mechanism, hold down the Eject Switch on the Rear Unit for a short time.**
3. **Use a grounded ESD wrist strap while disassembling the Lens portion.**
4. **Connect the F.P.C.s to the connectors, verifying the direction of F.P.C.s.**
   The Main P.C.B. or a Chip part will be especially damaged if the 90 Pin Extension Cable (LSUA0060) is misconnected.

Connections of 90 Pin Extension Cable (LSUA0060)

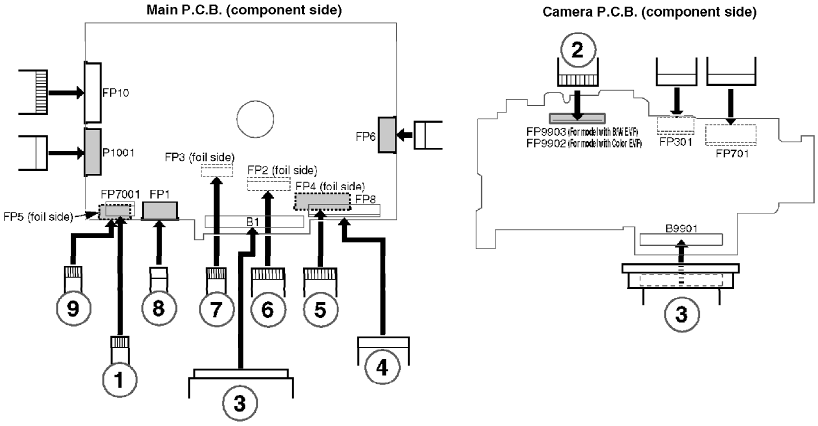


5. **Use extreme care when plugging or unplugging in connectors.**

Fig. 3


Note 3
Lens Unit
EVF Unit
EVF F.P.C.
②
Note 1
LCD open/close SW.
Note 4
③
Rear Unit
Camera P.C.B.
Front P.C.B.
Note 2
Eject Switch
Main P.C.B.
Battery Case Unit
④
LCD F.P.C.
Cassette Cover Unit
Zoom Switch F.P.C.
①
⑤
⑨
⑥
⑧
⑦
Capstan F.P.C.
Head Amp F.P.C.
Mechanism F.P.C.
Sub Mechanism F.P.C.
Cylinder F.P.C.
Mechanism Chassis Ass'y

Non ZIF connectors are on the Main P.C.B. and the Camera P.C.B. as shown in gray.


Main P.C.B. (component side)
FP10
P1001
FP6
FP3 (foil side)
FP2 (foil side)
FP4 (foil side)
FP8
FP7001
FP1
FP5 (foil side)
B1
⑨
⑧
⑦
⑥
⑤
①
③
④
Camera P.C.B. (component side)
②
FP9903 (For model with B/W EVF)
FP9902 (For model with Color EVF)
FP301
FP701
B9901
③

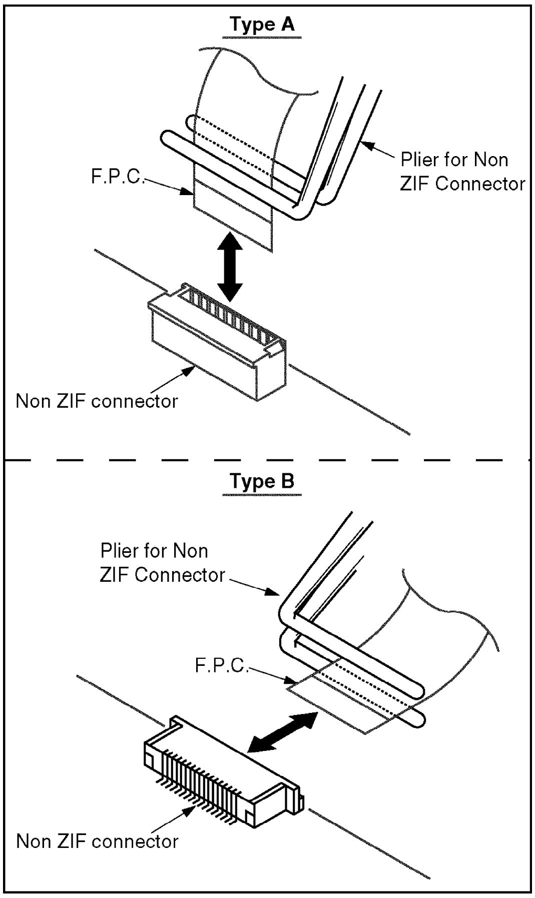
7.3. Removal/Installation of F.P.C. From Non ZIF (Zero Insertion Force) Connector

Removal/Installation of F.P.C. from the Non ZIF (Zero Insertion Force) connector:

1. **The Non ZIF connectors and the ZIF connectors are used on the unit. And there are 2 types (Type A, Type B) of Non ZIF connectors.**
2. **To remove the F.P.C. from the Non ZIF connector, use the Plier for Non ZIF Connector (LSVQ0028) to pull out the F.P.C. as shown.**

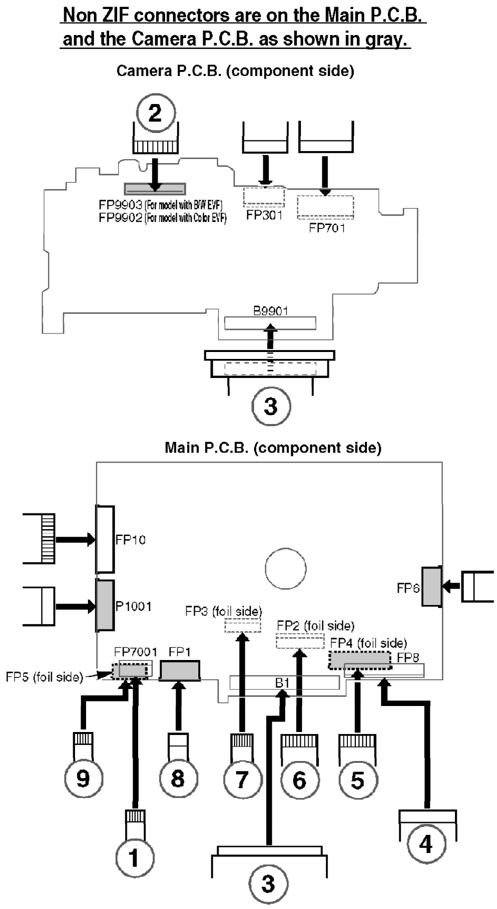
The same Plier for Non ZIF Connector (LSVQ0028) should also be used to install the F.P.C. to the Non ZIF Connector.

Fig. 4-1


Type A
F.P.C.
Plier for Non ZIF Connector
Non ZIF connector
Type B
Plier for Non ZIF Connector
F.P.C.
Non ZIF connector

3. **Connect the F.P.C.s to the Non ZIF connectors, verifying the direction of F.P.C as shown.**

Fig. 4-2



Non ZIF connectors are on the Main P.C.B.
and the Camera P.C.B. as shown in gray.
Camera P.C.B. (component side)
2
FP9903 (For model with B/W EVF)
FP9902 (For model with Color EVF)
FP301
FP701
B9901
3
Main P.C.B. (component side)
FP10
P1001
FP6
FP3 (foil side)
FP2 (foil side)
FP4 (foil side)
FP8
FP7001
FP1
FP5 (foil side)
B1
9
8
7
6
5
1
3
4

7.4. Method for Loading/Unloading of Mechanism

CAUTION:

If loading does not start after DC Power Supply is applied, DO NOT continue to apply DC Power.

Apply +3 VDC Power Supply to the Loading Motor terminals.

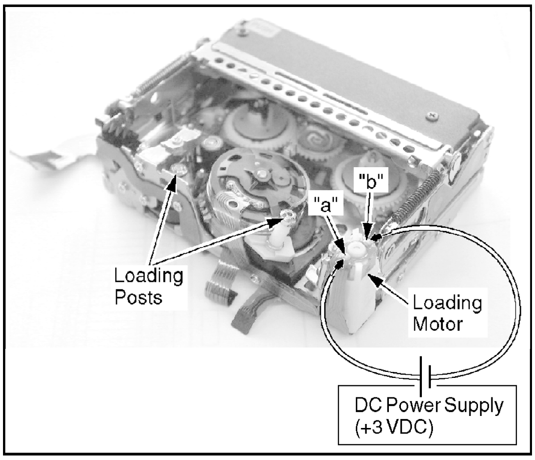
Loading:

DC (-) to Portion "a," DC (+) to Portion "b"

Unloading:

DC (+) to Portion "a," DC (-) to Portion "b"

Fig. 5



7.5. EEPROM Data

CAUTION:

Be sure to save the EEPROM data using PC-EVR Adjustment Program before service and adjustment in order to make sure to avoid an accidental data loss, etc. using PC-EVR Adjustment Program by first.

EEPROM IC

C.B.A.	EEPROM IC Ref. No.
Main C.B.A.	IC6003

7.6. Special Note

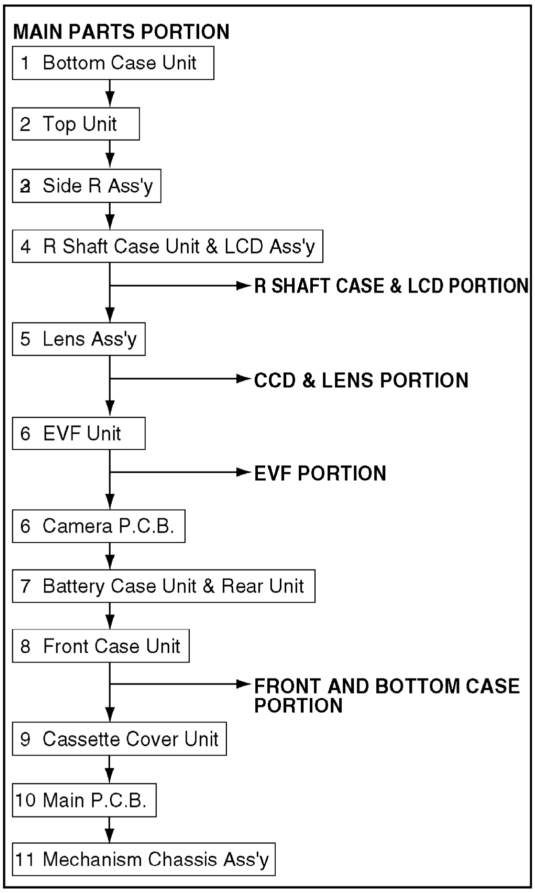
All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handlings techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

8. Disassembly and Assembly Instructions

8.1. Cabinet Section

8.1.1. DISASSEMBLY FLOWCHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.


MAIN PARTS PORTION
1 Bottom Case Unit
2 Top Unit
3 Side R Ass'y
4 R Shaft Case Unit & LCD Ass'y
R SHAFT CASE & LCD PORTION
5 Lens Ass'y
CCD & LENS PORTION
6 EVF Unit
EVF PORTION
6 Camera P.C.B.
7 Battery Case Unit & Rear Unit
8 Front Case Unit
FRONT AND BOTTOM CASE PORTION
9 Cassette Cover Unit
10 Main P.C.B.
11 Mechanism Chassis Ass'y

Note:

1. **When removing the cabinet, work with care so as not to break the Locking Tabs.**
2. **Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.**
3. **When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.**
4. **Do not supply power to the unit during disassembly and reassembly.**

8.1.2. Disassembly Method

8.2. Mechanism Section

Flow-Chart for Disassembly Procedures

No.	Item / Part	Fig.	Removal (Screw, Connector, Flex. & Other)
1	Cassette Up Unit	Fig. M1 Fig. M2 Fig. M3 Fig. M4	It makes the mechanism position in Eject condition (For Battery) 3-Screws (A) 3-Tabs It remove the piece arrangement unit from rail department
2	Cylinder Unit	Fig. M5 Fig. M6	1-Screw (B) 3-Screw (C) Cylinder Unit

Fig. M1

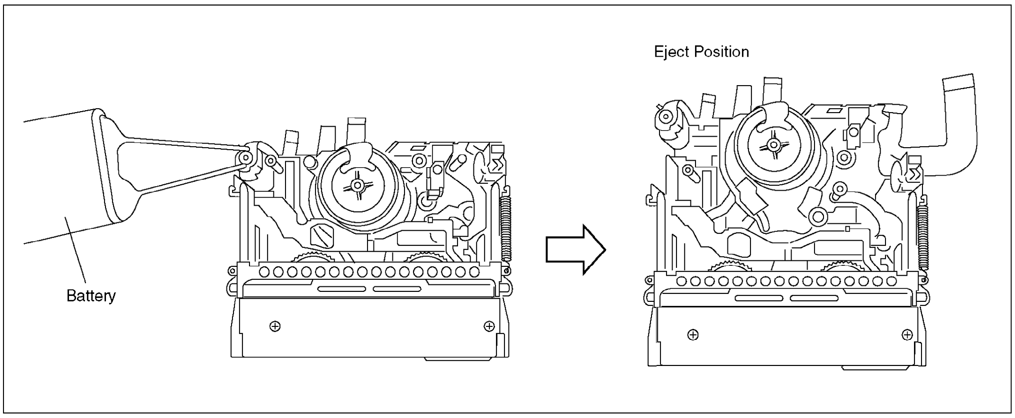

Eject Position
Battery

Fig. M2

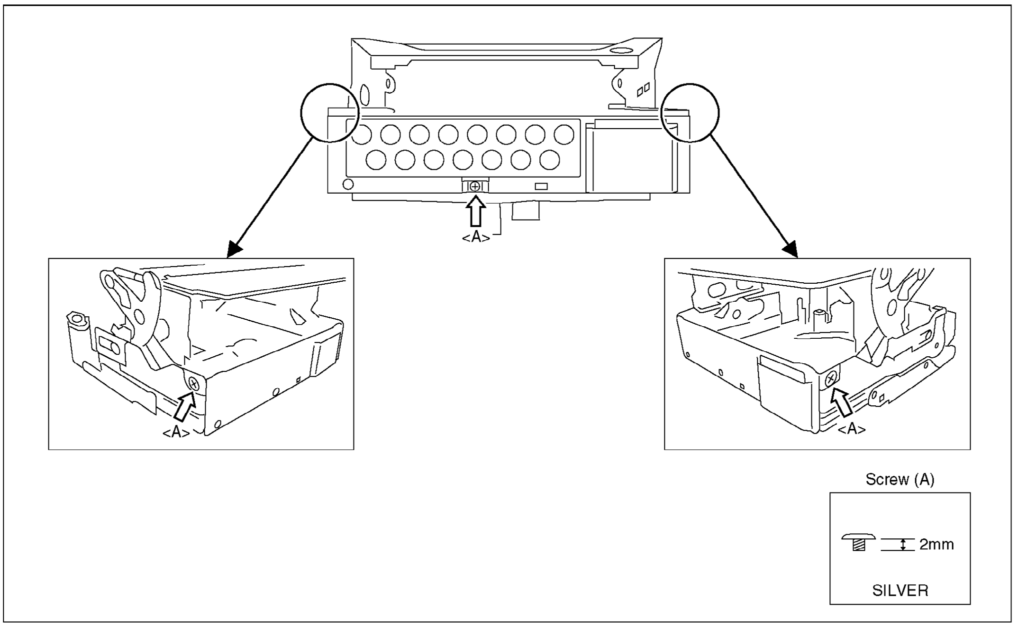

<A>
<A>
<A>
Screw (A)
2mm
SILVER

Fig. M3

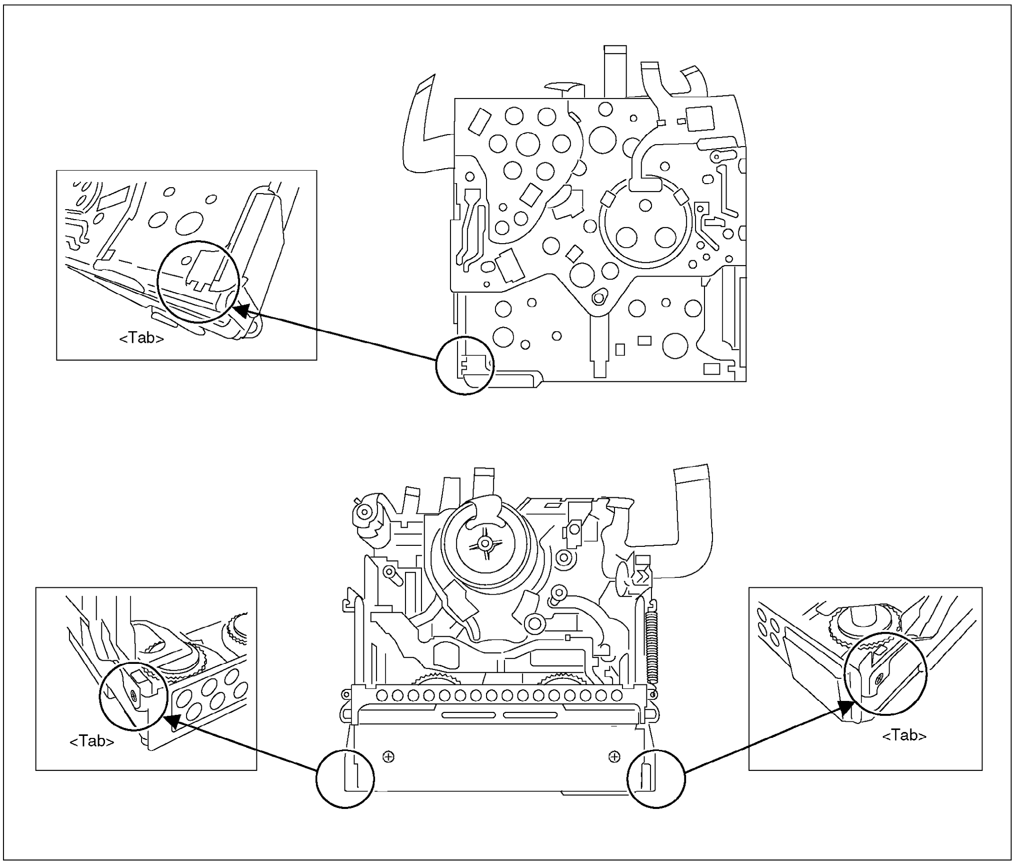


Fig. M4

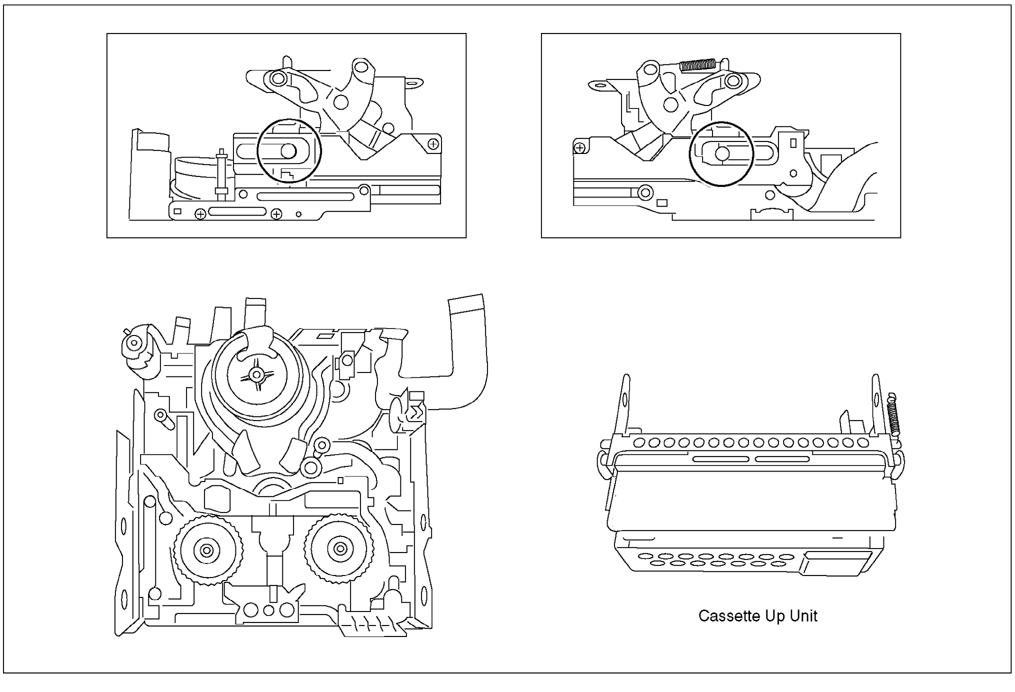

Cassette Up Unit

Fig. M5

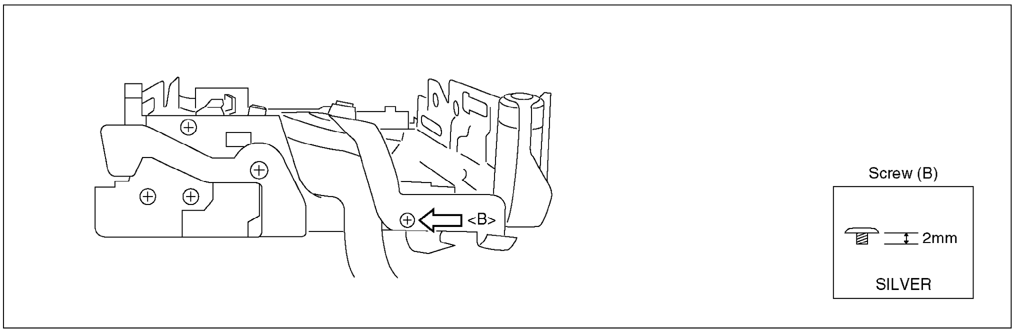
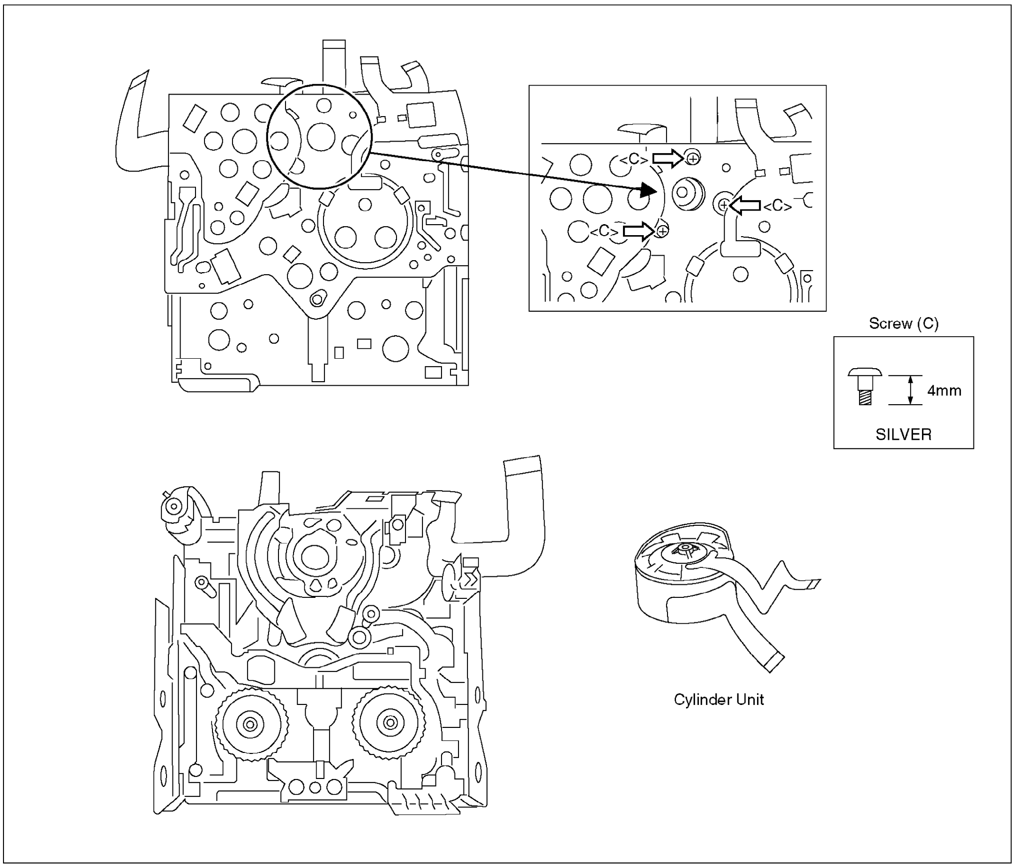

<B>
Screw (B)
2mm
SILVER

Fig. M6


<C>
<C>
<C>
Screw (C)
4mm
SILVER
Cylinder Unit

9. Measurements and Adjustments

9.1. Mechanical Adjustment

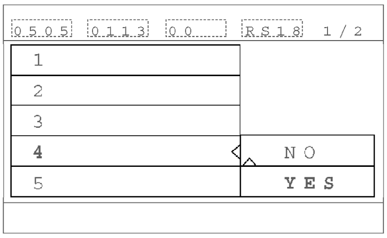
9.1.1. ENVELOPE OUTPUT ADJUSTMENT

When replacing the Main Chassis Unit or the Cylinder Unit, be sure to perform the Envelope Output Adjustment as shown below.

1. **Remove the Bottom Case Unit, Top Unit and Side R Ass'y (Refer to "Disassembly and Assembly Instructions.").**
2. **Connect the 90 Pin Extension Cable (LSUA0060) between Connector B1 on the Main P.C.B. and B9901 on the Camera P.C.B.**

3. **Connect the AV Cable to the Camcorder.**
4. **Connect the oscilloscope to VIDEO OUT plug "Envelope" and AUDIO R plug "HID."**
5. **Enter the Service Menu (Refer to "Service Menu," and select item [4].**
6. **Playback the Color Bar Standard Tape (VFM3110EDS). "Envelope" and "HID" will be output.**
7. **Adjust the S1 post by turning the top of post with Post Height Adjustment Fixture so that the left half of envelope signal becomes flat as possible.**
8. **Adjust the T1 post by turning the top of post with Post Height Adjustment Fixture so that the right half of envelope signal becomes flat as possible.**

Fig. E1-1



0505 0113 00 RS18 1/2

1

2

3

4 NO

5 YES

<Service Menu 1/2>

Enter :
[PHOTO SHOT], [JOYSTICK CONTROL LEFT] and
[RECORDING START/STOP]
(for more than 3 seconds)

Exit:
Power OFF.

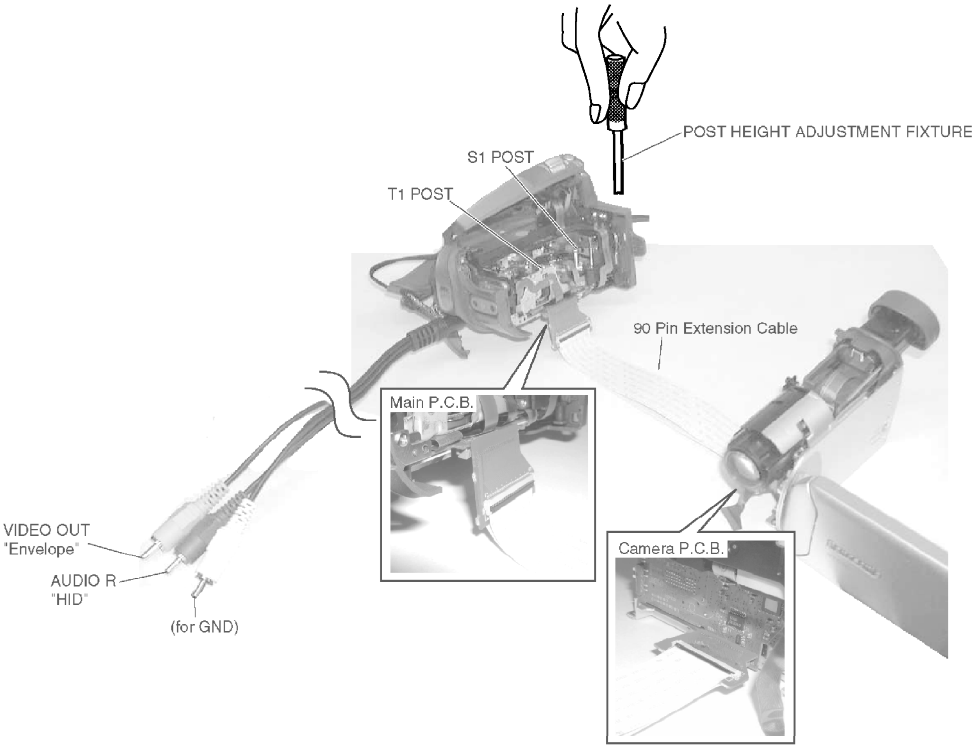
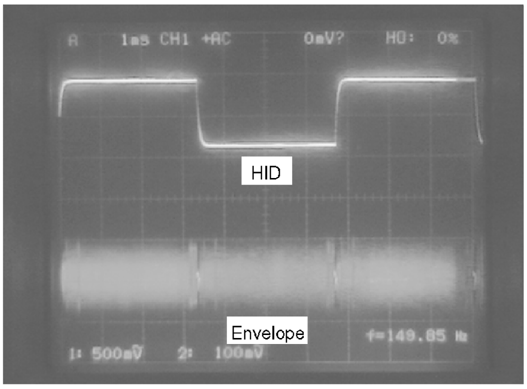
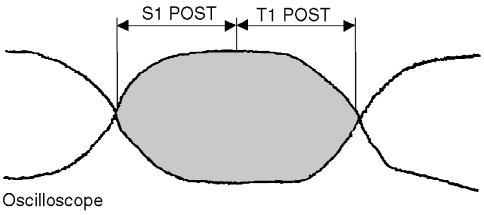

POST HEIGHT ADJUSTMENT FIXTURE
S1 POST
T1 POST
90 Pin Extension Cable
Main P.C.B.
Camera P.C.B.
VIDEO OUT
"Envelope"
AUDIO R
"HID"
(for GND)

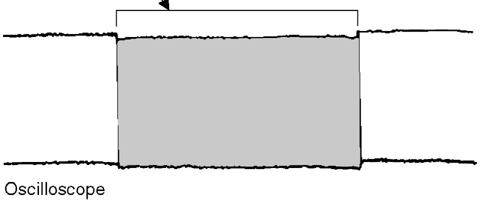
Fig. E1-2


A 1mS CH1 +AC 0mV? HD: 0%
HID
Envelope
1: 500mV 2: 100mV
f=149.85 Hz


S1 POST
T1 POST
Oscilloscope

Before Adj.

Make this part flat (square) as possible.


Oscilloscope

After Adj.

Note:
After the adjustment, be sure to confirm BER (Bit Error Ratio) using EVR Adjustment Software.
If it is NG, try this adjustment once again.

9.2. Electrical Adjustment

9.2.1. Initial Guideline

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

Adjustment Item	**Replacement Parts**	MAIN P.C.B.	IC302 (CAMERA SIGNAL PROCESS)	IC701 (FOCUS/ZOOM MOTOR DRIVE & IRIS/HALL AMP CONTROL)	IC3001 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING)	IC3101 (VIDEO/AUDIO SIGNAL PROCESS)	IC6001 (SYSTEM MICROCONTROLLER)	IC6003 (EEPROM)	CAMERA P.C.B.	LCD P.C.B.	IC8001(LCD RGB/EVF SIGNAL PROCESS)	CCD UNIT	LENS UNIT	CYLINDER UNIT	MAIN CHASSIS UNIT
Camera	CAM hall amplifier and Iris PWM	○		○			○	○	○				○		
	CAM Zoom Tracking and De-focus	○						○	○				○		
	CAM WB coarse	○	○		○			○	○			○			
	CAM AWB 3100	○	○		○			○	○			○			
	CAM AWB 5100	○	○		○			○	○			○			
	CAM Revision CCD scrach	○						○	○			○			
Video	VCR Sensitivity adj of Tape sensors	○						○							○
	VCR PG shifter adjustment	○						○						○	○
	VCR Luminance level	○			○	○		○							
	VCR Chroma level	○			○	○		○							
LCD	LCD Contrast							○			○				
	LCD Bright							○			○				
	LCD Sub Bright							○			○				
	LCD VCOM level							○			○				
EVF	EVF Horizontal free running							○			○				
	EVF Contrast							○			○				
	EVF Bright							○			○				
	EVF Sub Bright							○			○				
	EVF VCOM leve							○			○				

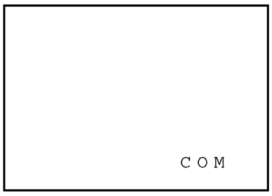
Note: ○ : Adjustment Item

9.2.2. Installation of USB-SERIAL driver

Execute the "Setup.exe" file in "ComMass" folder by double clicking to install the USB-SERIAL driver.

9.2.3. COM Mode

If a Disc or SD Card is inserted, remove before operation.
To enter the PC connection (COM) mode, push the [PHOTO SHOT], [RECORDING START/STOP] and [JOYSTICK CONTROL UP] simultaneously for 3 seconds without connecting the USB Cable.

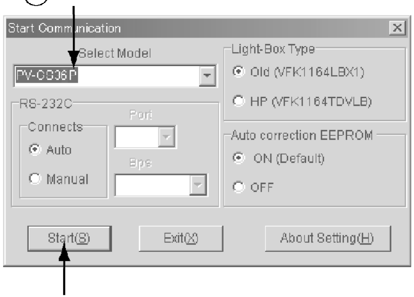


<LCD Monitor>

9.2.4. SET UP OF PC-EVR ADJUSTMENT PROGRAM

1. Turn on the PC and install the PC-EVR Adjustment Program into the PC.
2. Execute the "kdv2006.exe" file by double clicking to start up the PC-EVR Adjustment Program.
   The main menu will be displayed.
3. Select the appropriate model.
4. Turn on the camcorder and set to PC connection (COM) mode.
   Then click "Start".

① Select the desired model.


Start Communication
Select Model
RS-232C
Connects
Port
Bps
Light-Box Type
Auto correction EEPROM
Start(S)
Exit(X)
About Setting(H)

Select Model: PV-GS36P

Connects: ● Auto ○ Manual

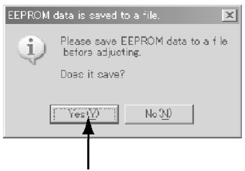
Light-Box Type: ● Old (VFK1164LBX1) ○ HP (VFK1164TDVLB)

Auto correction EEPROM: ● ON (Default) ○ OFF

② Click to start.

5. When the communication is complete, the dialog will appear.
   Click "Yes," and "Save" to save the EEPROM data.

Fig. E2-2


EEPROM data is saved to a file.
Yes(Y)
No(N)

Please save EEPROM data to a file before adjusting.

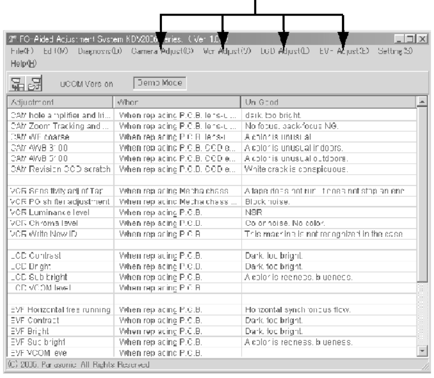
Does it save?

③ Click.

6. When saving EEPROM data is complete, the menu will appear.
   To perform each adjustment, display the adjustment menu by selecting from "Camera Adjust," "Vcr Adjust," "LCD Adjust" or "EVF Adjust" and select each adjustment item.

Fig. E2-3

④ Select the desired menu.


PC-Aided Adjustment System KDV2006 series. (Ver. 1.00)
File(F)
Edit(M)
Diagnosis(D)
Camera Adjust(C)
Vcr Adjust(V)
LCD Adjust(L)
EVF Adjust(E)
Setting(S)
Help(H)
uCOM Version
Demo Mode

Adjustment	When	Un Good
CAM hole amplifier and hi...	When replacing P.C.B. lens-u ...	dark, too bright.
CAM Zoom Tracking and ...	When replacing P.C.B. lens-u ...	No focus, back-focus NG.
CAM WB coarse	When replacing P.C.B. lens-u	A color is unusual.
CAM AWB 3100	When replacing P.C.B. CCD e...	A color is unusual indoors.
CAM AWB 5100	When replacing P.C.B. CCD e...	A color is unusual outdoors.
CAM Revision CCD scratch	When replacing P.C.B. CCD e...	White crack is conspicuous.
VCR Sensitivity adj of Tap	When replacing Mecha chass	A tape does not run. It does not stop an end
VCR PG shifter adjustment	When replacing Mecha chass ...	Block noise.
VCR Luminance level	When replacing P.C.B.	NSR
VCR Chroma level	When replacing P.C.B.	Color noise. No color.
VCR Write New ID	When replacing P.C.B.	This machine is not recognized in the case
LCD Contrast	When replacing P.C.B.	Dark, too bright.
LCD Bright	When replacing P.C.B.	Dark, too bright.
LCD Sub bright	When replacing P.C.B.	A color is redness, blueness.
LCD VCOM level	When replacing P.C.B.	
EVF Horizontal free running	When replacing P.C.B.	Horizontal synchronous flow.
EVF Contrast	When replacing P.C.B.	Dark, too bright.
EVF Bright	When replacing P.C.B.	Dark, too bright.
EVF Sub bright	When replacing P.C.B.	A color is redness, blueness.
EVF VCOM level	When replacing P.C.B.	

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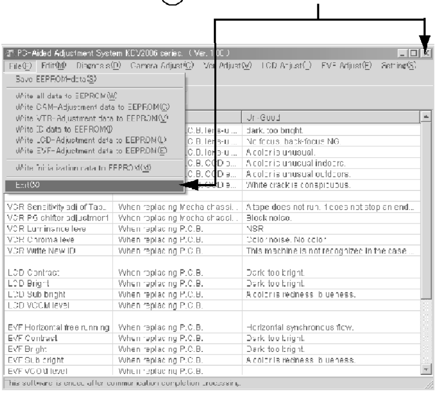
Note:

The adjusted data is stored in the EEPROM IC after each adjustment.

7. After adjustment, to close the software, select "Exit" in the File menu or close the window.

Fig. E2-4

⑤ Select "Exit" or close the window.


PC-Aided Adjustment System KDV2006 series. (Ver. 1.00)
File(F)
Edit(M)
Diagnosis(D)
Camera Adjust(C)
Vcr Adjust(V)
LCD Adjust(L)
EVF Adjust(E)
Setting(S)
Save EEPROM-data(S)
Write all data to EEPROM(W)
Write CAM-Adjustment data to EEPROM(C)
Write VTR-Adjustment data to EEPROM(V)
Write ID data to EEPROM(I)
Write LCD-Adjustment data to EEPROM(L)
Write EVF-Adjustment data to EEPROM(E)
Write Initialization data to EEPROM(X)
Exit(X)

		Un Good
	C.B. lens-u ...	dark, too bright.
	C.B. lens-u ...	No focus, back-focus NG.
	C.B. lens-u ...	A color is unusual.
	C.B. CCD e...	A color is unusual indoors.
	C.B. CCD e...	A color is unusual outdoors.
		White crack is conspicuous.
VCR Sensitivity adj of Tap...	When replacing Mecha chassi...	A tape does not run. It does not stop an end...
VCR PG shifter adjustment	When replacing Mecha chassi...	Block noise.
VCR Luminance level	When replacing P.C.B.	NSR
VCR Chroma level	When replacing P.C.B.	Color noise. No color.
VCR Write New ID	When replacing P.C.B.	This machine is not recognized in the case ...
LCD Contrast	When replacing P.C.B.	Dark, too bright.
LCD Bright	When replacing P.C.B.	Dark, too bright.
LCD Sub bright	When replacing P.C.B.	A color is redness, blueness.
LCD VCOM level	When replacing P.C.B.	
EVF Horizontal free running	When replacing P.C.B.	Horizontal synchronous flow.
EVF Contrast	When replacing P.C.B.	Dark, too bright.
EVF Bright	When replacing P.C.B.	Dark, too bright.
EVF Sub bright	When replacing P.C.B.	A color is redness, blueness.
EVF VCOM level	When replacing P.C.B.	

This software is ended after communication completion processing.

8. To release the PC connection (COM) mode, push the [PHOTO SHOT], [RECORDING START/STOP] an [JOYSTICK CONTROL UP] simultaneously for 3 seconds without connecting the USB Cable.

10. Maintenance

10.1. Cleaning Lens, Viewfinder and LCD Panel

Do not touch the surface of the lens, Viewfinder and LCD Panel with your hand.
When cleaning the lens, use air-blower to blow off the dust.
When cleaning the LCD Panel, dampen the lens cleaning paper with lens cleaner, and gently wipe the surface.

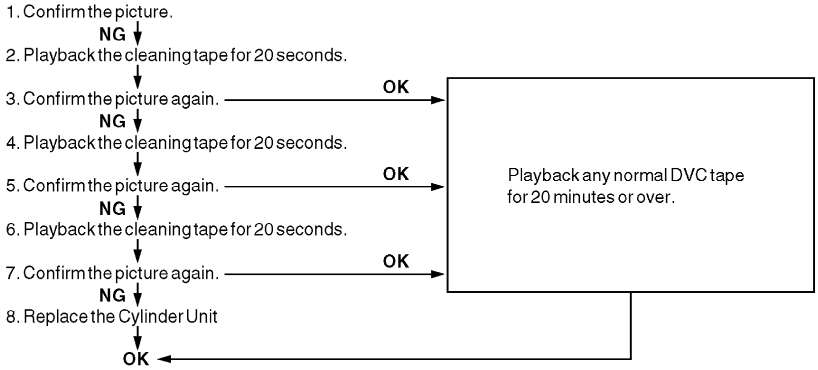
Note:

Lens cleaning paper and lens cleaner are available at camera shops, etc.

10.2. How to use the DVC Head Cleaning Tape / VFK1451

Please use the cleaning tape as described below.

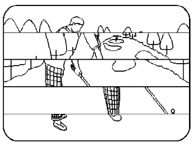
Note: This cleaning tape has a total playback time of 2 minutes 30 seconds. it can be used 30 times.



1. Confirm the picture.
2. Playback the cleaning tape for 20 seconds.
3. Confirm the picture again.
4. Playback the cleaning tape for 20 seconds.
5. Confirm the picture again.
6. Playback the cleaning tape for 20 seconds.
7. Confirm the picture again.
8. Replace the Cylinder Unit

Playback any normal DVC tape for 20 minutes or over.

The picture will look like this in case of clogged video head.



11. Block Diagrams

12. Schematic Diagrams

12.1. SCHEMATIC DIAGRAM & CIRCUIT BOARD LAYOUT NOTES

12.2. FRONT SCHEMATIC DIAGRAM

12.3. LCD BACKLIGHT SCHEMATIC DIAGRAM

12.4. EVF BACKLIGHT / CASSETTE COVER SCHEMATIC DIAGRAMS

12.5. CCD / REAR / LCD SW / BATTERY CASE SCHEMATIC DIAGRAMS

12.6. INTERCONNECTION SCHEMATIC DIAGRAM

12.7. VOLTAGE CHART

13. Printed Circuit Board

13.1. FRONT P.C.B.

13.2. LCD BACKLIGHT P.C.B.

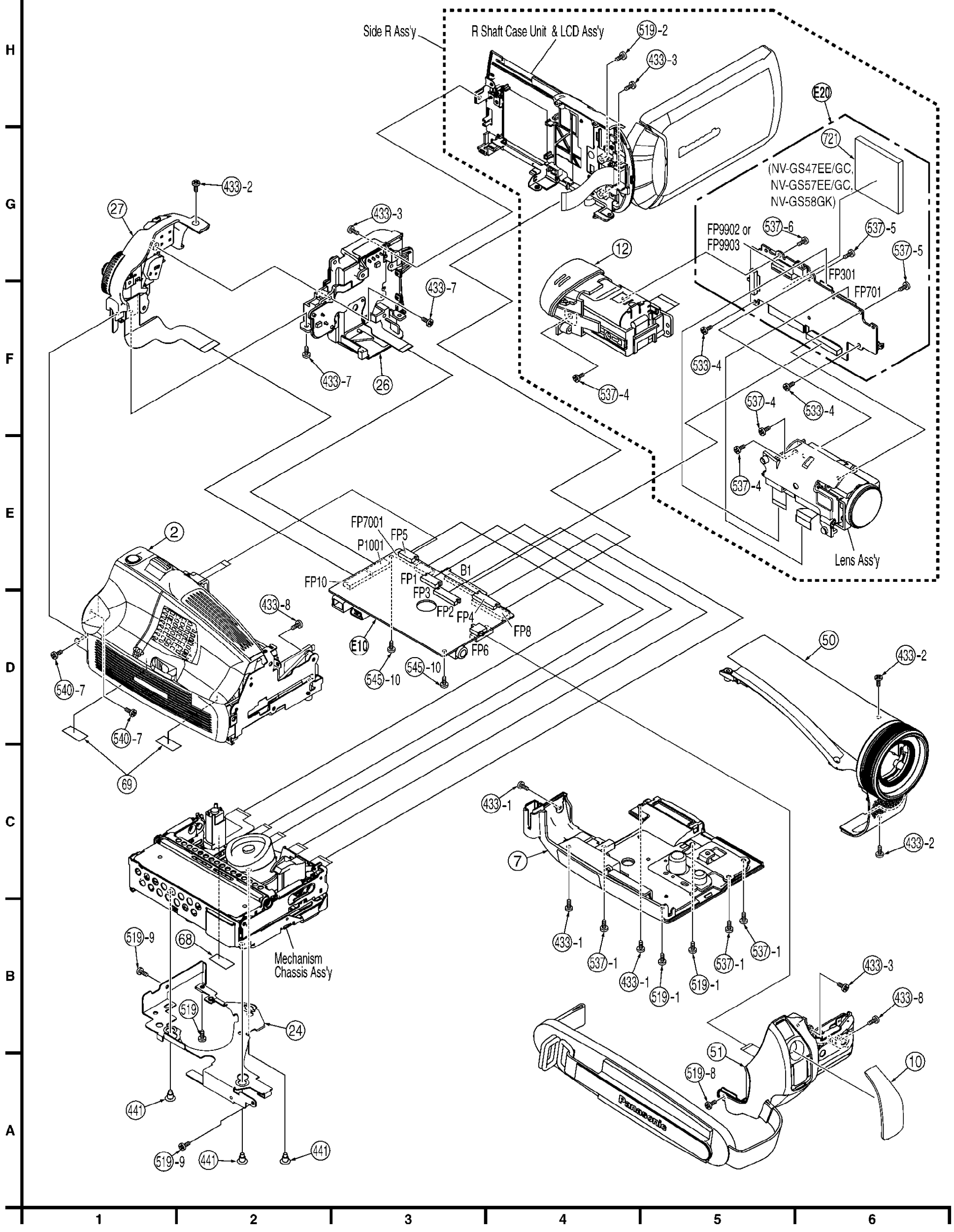
14. Exploded Views

14.1. MAIN PARTS SECTION

❶ MAIN PARTS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



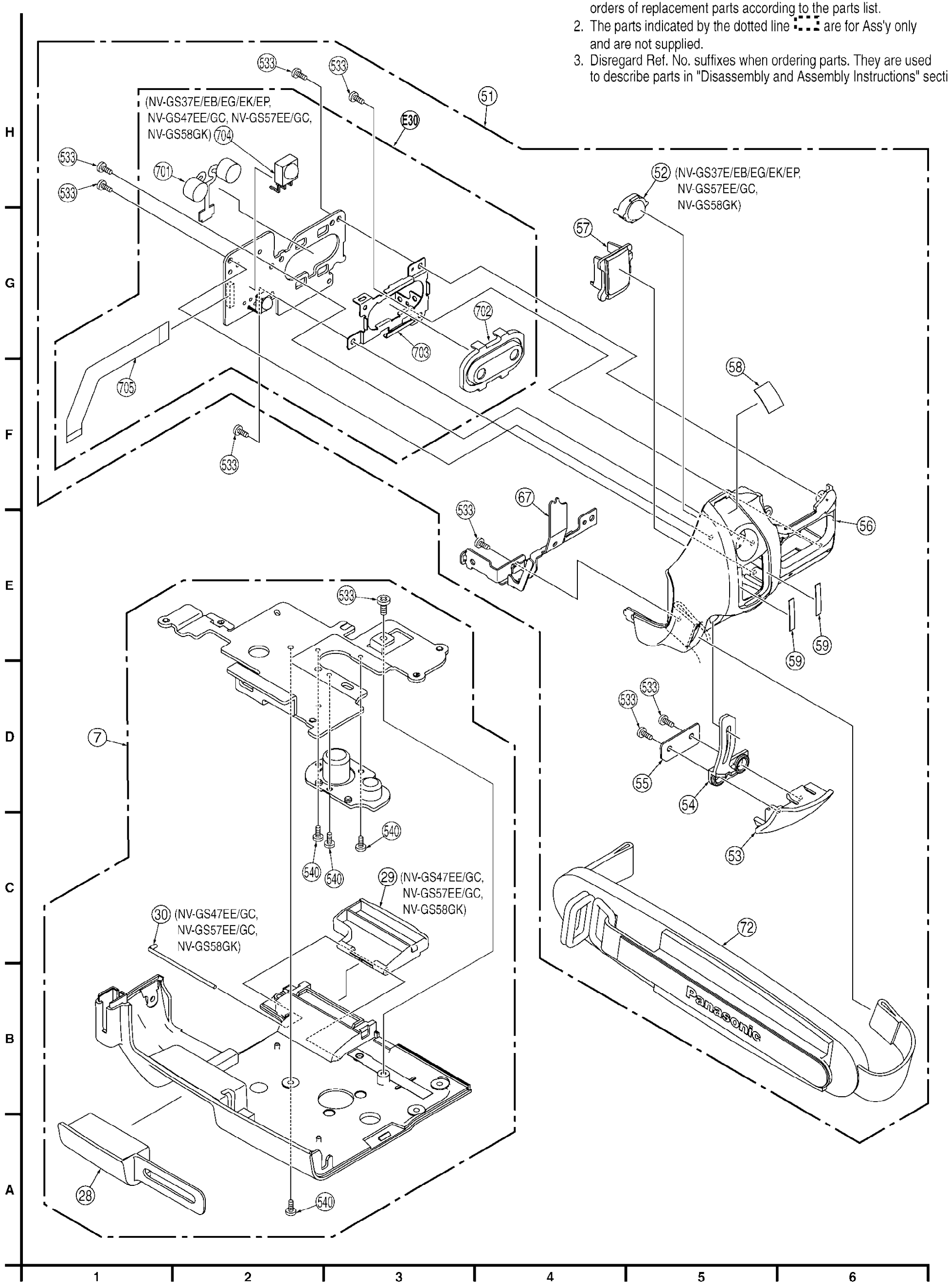
Side R Ass'y
R Shaft Case Unit & LCD Ass'y
⑲-2
(519)-2
(433)-3
E20
(721)
(NV-GS47EE/GC,
NV-GS57EE/GC,
NV-GS58GK)
FP9902 or
FP9903
(537)-6
(537)-5
(537)-5
FP301
FP701
(12)
(533)-4
(537)-4
(537)-4
(533)-4
(537)-4
Lens Ass'y
(433)-2
(27)
(433)-3
(433)-7
(433)-7
(26)
(2)
FP7001
FP5
P1001
FP10
B1
FP1
FP3
FP2
FP4
FP8
FP6
(433)-8
E10
(545)-10
(545)-10
(540)-7
(540)-7
(69)
(50)
(433)-2
(433)-2
(433)-1
(7)
(433)-1
(537)-1
(433)-1
(519)-1
(519)-1
(537)-1
(537)-1
(519)-9
(68)
Mechanism
Chassis Ass'y
(519)
(24)
(441)
(519)-9
(441)
(441)
(433)-3
(433)-8
(51)
(519)-8
(10)
H
G
F
E
D
C
B
A
1
2
3
4
5
6

14.2. FRONT AND BOTTOM CASE SECTION

❷ FRONT AND BOTTOM CASE SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝ ⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.

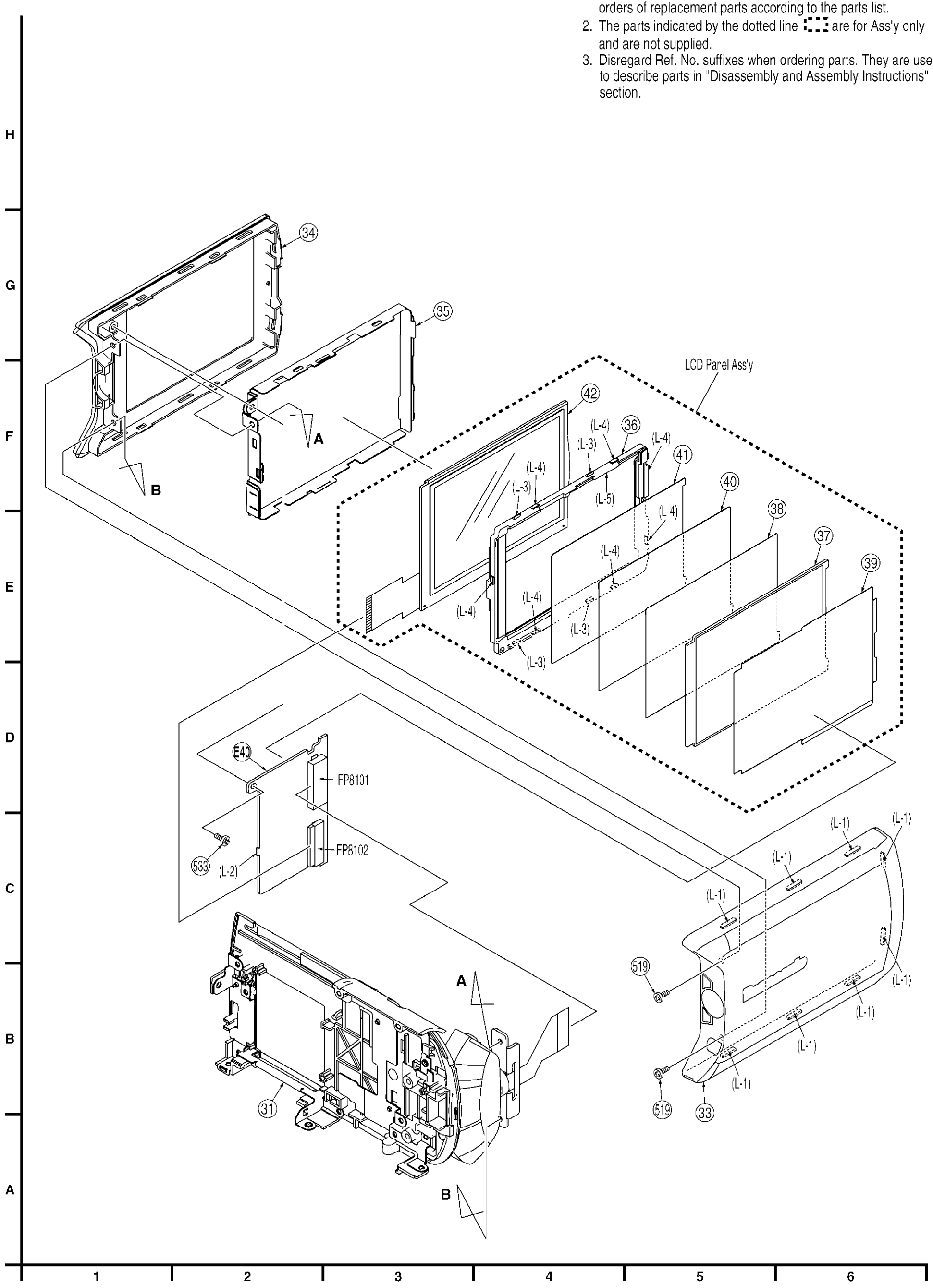

H
G
F
E
D
C
B
A
1
2
3
4
5
6
533
533
51
(NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK) 704
E30
533
533
701
52 (NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK)
57
702
703
705
58
533
533
67
56
7
533
59
59
533
533
55
54
53
540
540
540
29 (NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK)
30 (NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK)
72
Panasonic
28
540

14.3. SIDE CASE R AND LCD SECTION

❸ R SHAFT CASE UNIT AND LCD SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁞⁞ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
㉞
㉟
LCD Panel Ass'y
㊷
(L-4)
㊱
(L-3)
(L-4)
㊶
(L-4)
(L-3)
(L-5)
㊵
(L-4)
㊳
(L-4)
㊲
(L-4)
(L-4)
(L-3)
㊴
(L-3)
A
B
E40
FP8101
FP8102
533
(L-2)
(L-1)
(L-1)
(L-1)
(L-1)
519
(L-1)
(L-1)
(L-1)
(L-1)
519
㉝
㉛
A
B

14.4. CCD AND LENS SECTION

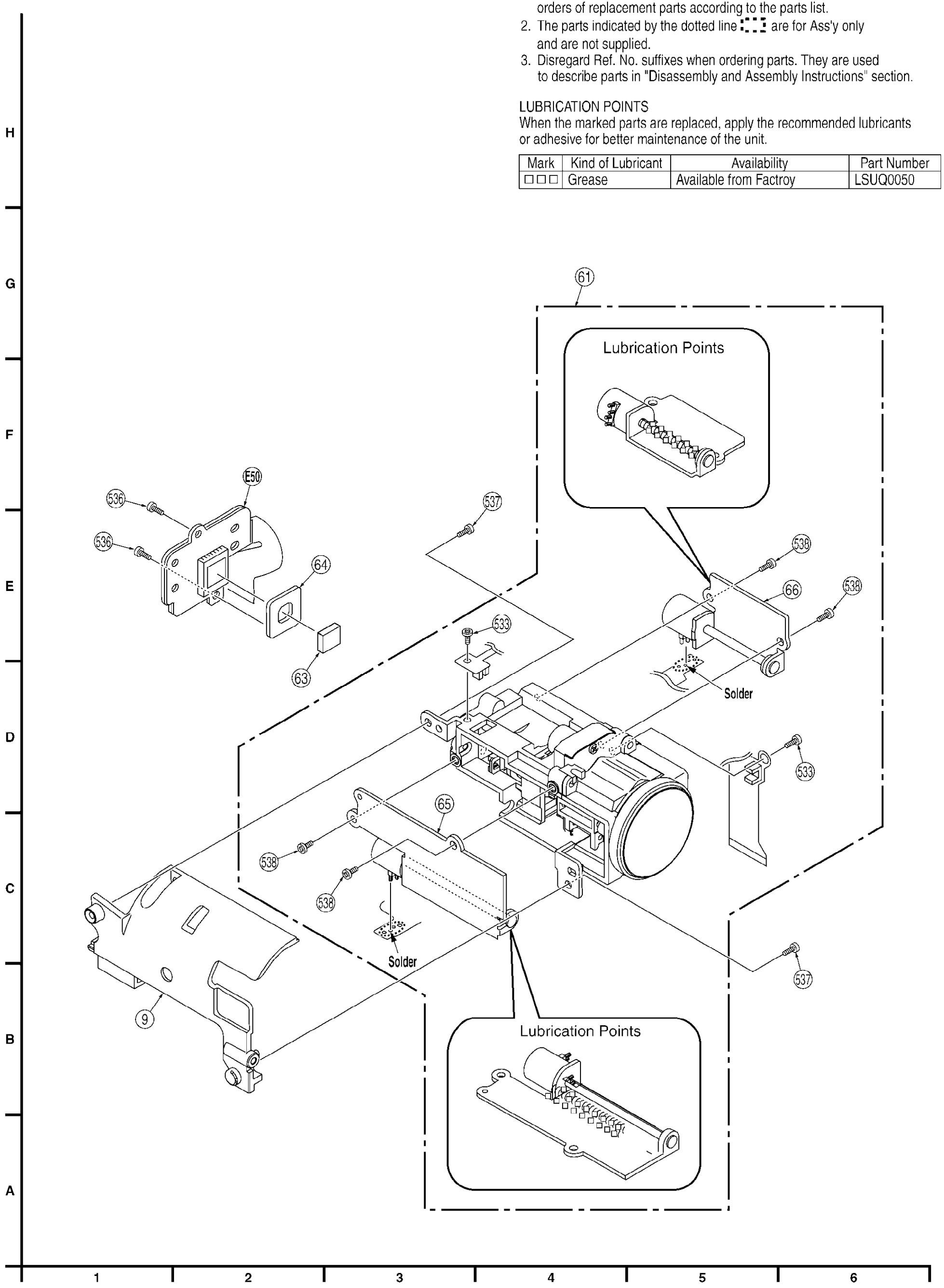
❹ CCD AND LENS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁚⁚⁚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
□□□	Grease	Available from Factroy	LSUQ0050

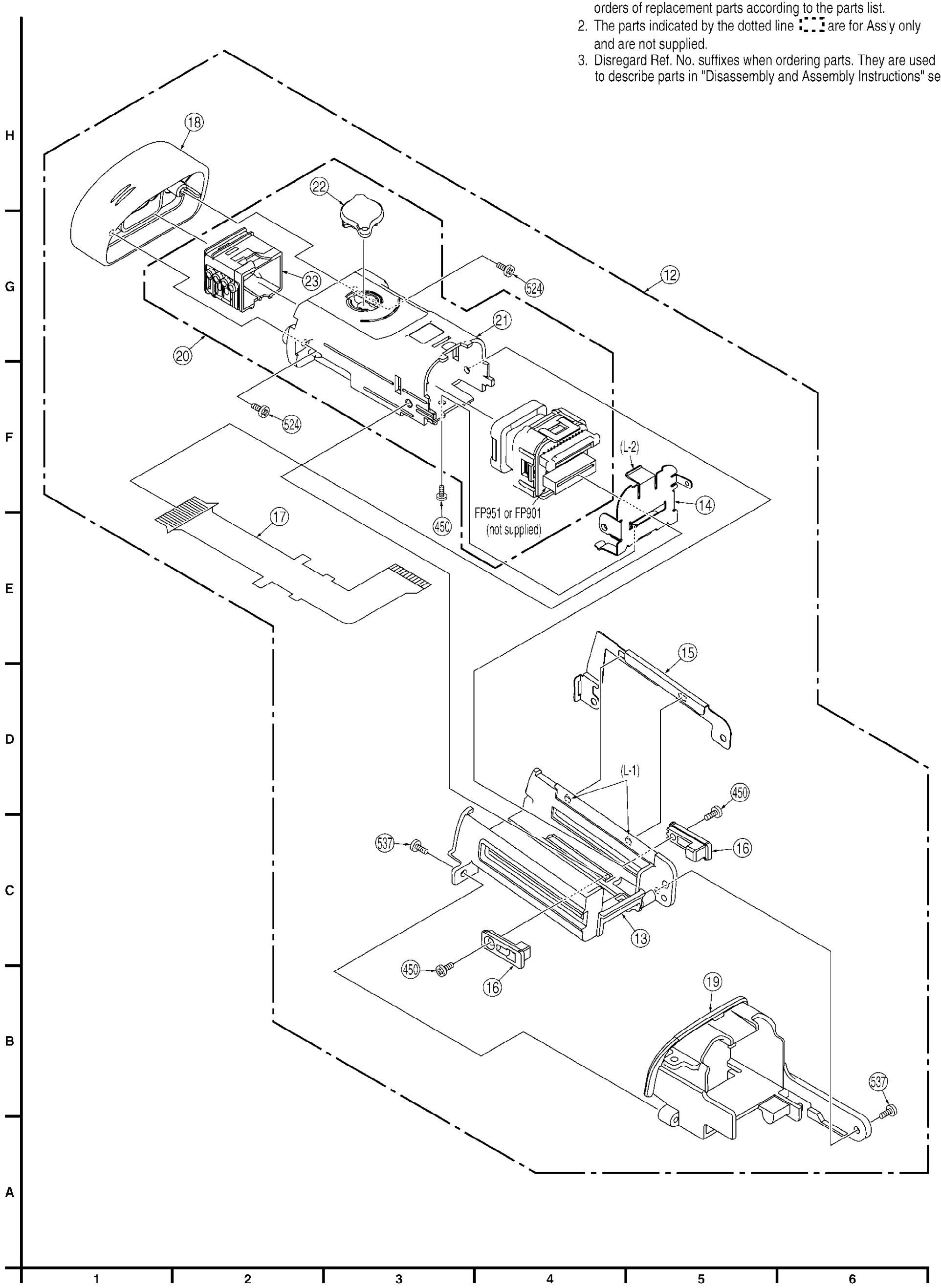

H
G
F
E
D
C
B
A
1
2
3
4
5
6
61
Lubrication Points
536
E50
536
537
64
538
66
538
63
533
Solder
533
65
538
538
Solder
537
9
Lubrication Points

14.5. EVF SECTION

❺ EVF SECTION

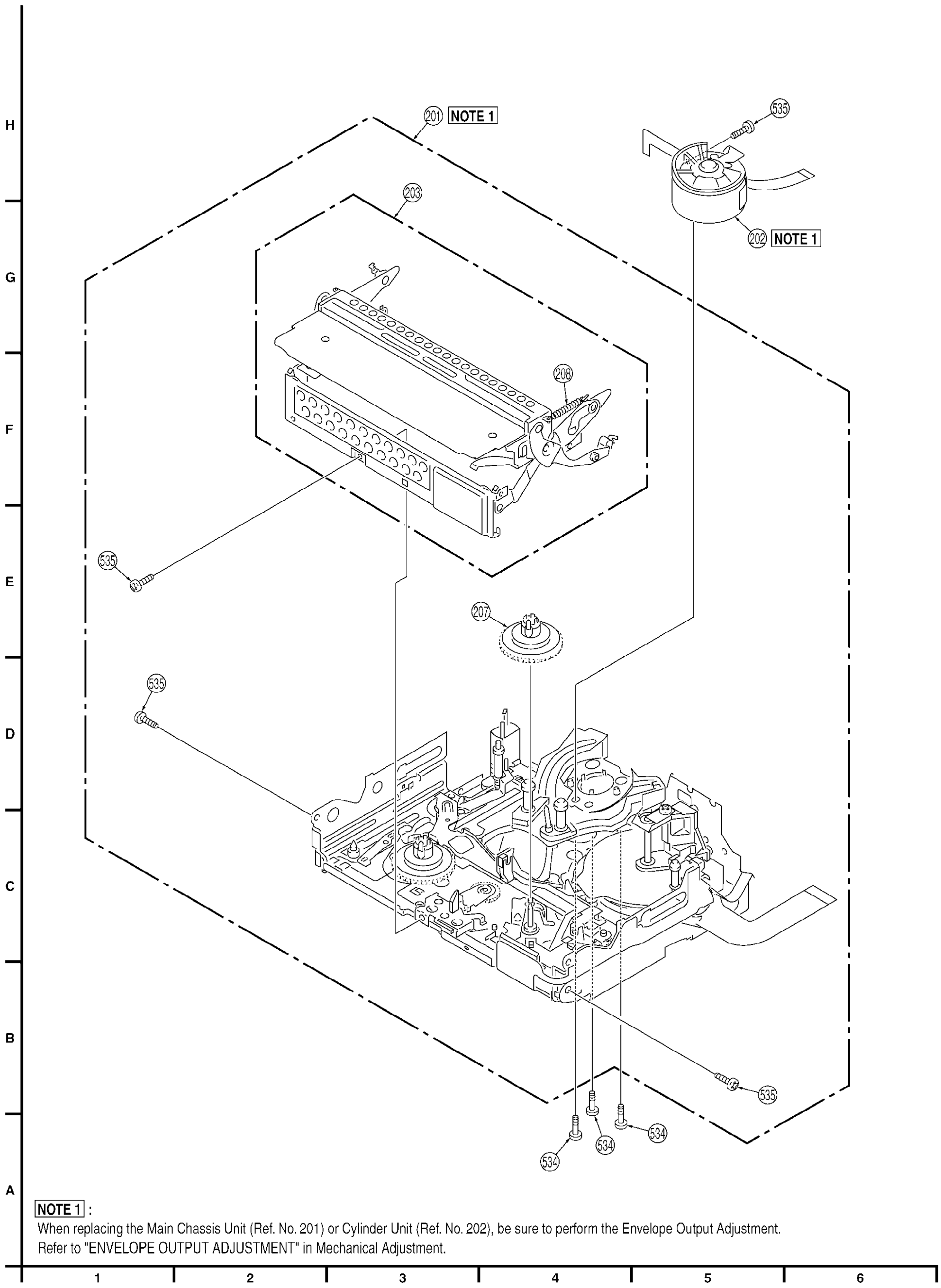
Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
⑱
㉒
㉓
⑫
524
㉑
⑳
524
(L-2)
⑭
450
FP951 or FP901
(not supplied)
⑰
⑮
(L-1)
450
⑯
537
⑬
450
⑯
⑲
537

14.6. MECHANISM SECTION

❻ MECHANISM SECTION


201 NOTE 1
535
203
202 NOTE 1
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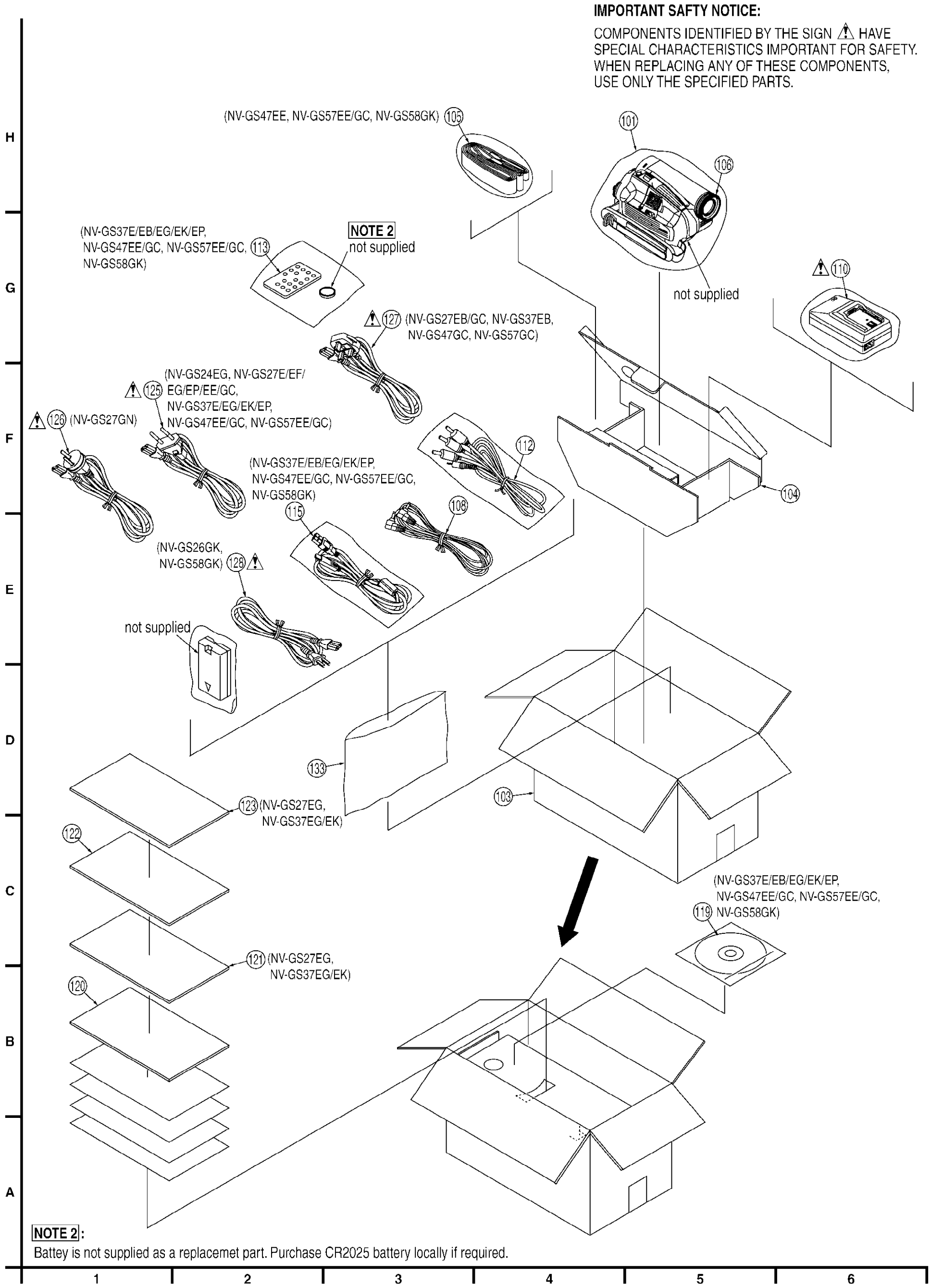
NOTE 1 :
When replacing the Main Chassis Unit (Ref. No. 201) or Cylinder Unit (Ref. No. 202), be sure to perform the Envelope Output Adjustment.
Refer to "ENVELOPE OUTPUT ADJUSTMENT" in Mechanical Adjustment.

14.7. PACKING PARTS AND ACCESSORIES SECTION

❼ PACKING PARTS AND ACCESSORIES SECTION



IMPORTANT SAFTY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

(NV-GS47EE, NV-GS57EE/GC, NV-GS58GK) ⑩⑤
⑩①
⑩⑥
(NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, ⑪③ NV-GS58GK)
NOTE 2 not supplied
not supplied
⚠ ⑪⓪
⚠ ⑫⑦ (NV-GS27EB/GC, NV-GS37EB, NV-GS47GC, NV-GS57GC)
⚠ ⑫⑤ (NV-GS24EG, NV-GS27E/EF/EG/EP/EE/GC, NV-GS37E/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC)
⚠ ⑫⑥ (NV-GS27GN)
⑪②
(NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK) ⑪⑤
⑩⑧
⑩④
(NV-GS26GK, NV-GS58GK) ⑫⑧ ⚠
not supplied
⑬③
⑫③ (NV-GS27EG, NV-GS37EG/EK)
⑩③
⑫②
(NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, ⑪⑨ NV-GS58GK)
⑫① (NV-GS27EG, NV-GS37EG/EK)
⑫⓪
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NOTE 2:
Battey is not supplied as a replacemet part. Purchase CR2025 battery locally if required.

15. Replacement Parts Lists

BEFORE REPLACING PARTS, READ THE FOLLOWING:

1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. IMPORTANT SAFETY NOTICE
Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. Definition of Parts supplier:
A. Parts with mark "SPC" in the Remarks column are supplied from Spare Parts Center of Panasonic AVC Company.
B. Parts without mark in the Remarks column are supplied from PSEC.

4. Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.

5. Model Number Indication:
Model numbers are indicated in the Remarks column without "NV-GS."

6. Unless otherwise specified;
All resistors are in Ω, K = 1,000 Ω, M = 1,000 kΩ.

7. Abbreviation
RTL: Retention Time Limited
This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
NR: Non Repairable Board Ass'y
MGF CHIP: Metal Glaze Film Chip
C CHIP: Ceramic Chip
COMPLX CMP: Complex Component
W FLMPRF: Wirewound Flameproof
P.C.B.: Circuit Board Assembly
P.C.B.: Printed Circuit Board
E.S.D.: Electrostatically Sensitive Devices
CSP: Chip Size Package

8. AC Adaptor
A. VSK0561 is indicated on the AC Adaptor used in the following models:
NV-GS26GK and NV-GS58GK.

However, the AC Adaptor replacement part number is DE-974HA which should be used when ordering.

B. VSK0561 is indicated on AC Adaptor used in the following models:
NV-GS24EG, NV-GS27E, NV-GS27EB, NV-GS27EE, NV-GS27EF, NV-GS27EG, NV-GS27EP, NV-GS27GC, NV-GS27GN, NV-GS37E, NV-GS37EB, NV-GS37EG, NV-GS37EK, NV-GS37EP, NV-GS47EE, NV-GS47GC, NV-GS57EE, and NV-GS57GC.
However, the AC Adaptor replacement part number is DE-974GB which should be used when ordering.

15.1. MECHANICAL REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. **Parts with mark "SPC" in the Remarks column are supplied from Spare Parts Center of Panasonic AVC Company.**
2. **Parts without mark in the Remarks column are supplied from PSEC.**

Notes:

Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description
2	LSYK1699	CASSETTE COVER UNIT
2	LSYK1694	CASSETTE COVER UNIT
7	LSXK0243	BOTTOM CASE UNIT,ABS RESIN
7	LSXK0242	BOTTOM CASE UNIT,ABS RESIN
9	LSKM1193	LENS COVER
10	LSGF0541	LIGHT PROTECTOR
10	LSGF0544	LIGHT PROTECTOR
12	LSXK0240	EVF UNIT
12	LSXK0241	EVF UNIT
13	LSKM1165	EVF BASE FRAME
14	LSMA0721	EVF SPRING
15	LSSC0833	EVF EARTH PLATE
16	LSMD0799	EVF SLIDE PIECE
17	LSJB8306	EVF FLEXIBLE PRINTED CIRCUIT
17	LSJB8305	EVF FLEXIBLE PRINTED CIRCUIT
18	LSGQ0182	EYE CAP
19	LSKM1164	EVF FRAME
20	LSYK1532	EVF CASE 1 UNIT,ABS RESIN
20	LSYK1533	EVF CASE 1 UNIT,ABS RESIN
21	LSKM1024	EVF CASE,ABS RESIN
22	LSGT0068	EYE SIGHT LEVER
23	LSYK1415	EVF LENS UNIT
24	LSYK1712	MECHA FRAME UNIT
26	LSYK1668	BATTERY CASE UNIT,ABS RESIN
27	LSYK1698	REAR UNIT
27	LSYK1697	REAR UNIT
27	LSYK1696	REAR UNIT
27	LSYK1695	REAR UNIT
28	LSKF0655	BOTTOM JACK COVER
29	LSKF0656	SD COVER
30	LSGQ0183	SD COVER SHAFT
31	LSYK1673	R SHAFT CASE UNIT,ABS RESIN

Ref. No.	Part No.	Part Name & Description
31	LSYK1672	R SHAFT CASE UNIT,ABS RESIN
33	LSYK1684	LCD CASE A UNIT,ABS RESIN
33	LSYK1719	LCD CASE A UNIT,ABS RESIN
33	LSYK1683	LCD CASE A UNIT,ABS RESIN
33	LSYK1682	LCD CASE A UNIT,ABS RESIN
33	LSYK1679	LCD CASE A UNIT,ABS RESIN
33	LSYK1678	LCD CASE A UNIT,ABS RESIN
33	LSYK1680	LCD CASE A UNIT,ABS RESIN
34	LSKM1173	LCD CASE B,ABS RESIN
35	LSXY0939	LCD SHIELD CASE UNIT,ABS RESIN
36	LSXY0940	PANEL HOLDER UNIT
37	LSGL0422	LEAD LIGHT PANEL
38	LSGL0404	DIFFUSION SHEET
39	LSGL0423	REFLECT SHEET
40	LSGL0406	BEF SHEET
41	LSGL0421	BEF SHEET A
42	L5BDDYH00014	LIQUID CRYSTAL DISPLAY PANEL
50	LSYK1687	TOP UNIT
50	LSYK1686	TOP UNIT
51	LSXK0236	FRONT CASE UNIT,ABS RESIN
51	LSXK0238	FRONT CASE UNIT,ABS RESIN
51	LSXK0239	FRONT CASE UNIT,ABS RESIN
52	LSMD0822	LED LIGHT LENS
53	LSKF0653	FRONT JACK COVER
54	LSMD0832	FRONT COVER HINGE
55	LSMF0470	FRONT HINGE COVER PIECE
56	LSKM1163	FRONT CASE,ABS RESIN
57	LSGL0441	IR PIECE
58	LSMZ0409	FRONT BOTH SIDE TAPE A
59	LSMZ0410	FRONT BOTH SIDE TAPE B
61	LSXN0042	LENS UNIT
63	VDL1390-B	OPTICAL LOW PASS FILTER
64	VMX3282	FILTER RUBBER
65	L6HA66NB0003	ZOOM MOTOR UNIT
66	L6HA66NB0006	FOCUS MOTOR UNIT
67	LSMA0882	FRONT STRAP ANGLE
68	LSMF0508	SHEET
69	LSMT0422	CUSHION
72	LSGQ0181	HAND STRAP
101	VPF1129	POLY BAG
103	LSPG2135	PACKING CASE,PAPER
103	LSPG2134	PACKING CASE,PAPER
103	LSPG2132	PACKING CASE,PAPER
103	LSPG2133	PACKING CASE,PAPER
103	LSPG2127	PACKING CASE,PAPER
103	LSPG2130	PACKING CASE,PAPER
103	LSPG2128	PACKING CASE,PAPER

Ref. No.	Part No.	Part Name & Description
103	LSPG2129	PACKING CASE,PAPER
104	LSPN0659	DVD PACKING
105	VFC3506-1A	SHOULDER STRAP
106	LSYF0552	LENS CAP UNIT
108	K2GJ2DC00015	DV CABLE W/PLUG
110	DE-974GB	AC ADAPTOR UNIT
110	DE-974HA	AC ADAPTOR UNIT
112	K2KC4CB00022	AUDIO VIDEO CABLE W/PLUG
113	N2QAEC000017	INFRARED REMOTE CONTROL UNIT
115	K1HA05CD0009	USB CABLE W/PLUG
119	VFF0305-1A	CD-ROM (ENGLISH/GERMAN/FRENCH/SPANISH/ITALIAN/CHINESE(SIMPLIFIE
120	LSQT1010-A	INSTRUCTION BOOK (FRENCH)
120	LSQT1009-A	INSTRUCTION BOOK (CHINESE(SIMPLIFIED))
120	LSQT1004-A	INSTRUCTION BOOK (PORTUGUESE/SPANISH/SWEDISH/DANISH)
120	LSQT1006-A	INSTRUCTION BOOK (ENGLISH)
120	LSQT1003-A	INSTRUCTION BOOK (FRENCH)
120	LSQT1002-A	INSTRUCTION BOOK (GERMAN/FRENCH/ITALIAN/DUTCH)
120	LSQT1005-A	INSTRUCTION BOOK (ENGLISH/POLISH/CZECH/HANGARIAN)
120	LSQT1028-A	INSTRUCTION BOOK (RUSSIAN/UKRAINIAN)
120	LSQT1007-A	INSTRUCTION BOOK (CHINESE(TRADITIONAL)/ENGLISH/RUSSIAN/ARABIC)
120	LSQT1008-A	INSTRUCTION BOOK (ENGLISH)
121	LSQT1037-A	INSTRUCTION BOOK (TURKISH)
122	VQT0T12	INSTRUCTION FOR CD-ROM (GERMAN/FRENCH/ITALIAN/DUTCH)
122	VQT0T31	INSTRUCTION BOOK FOR CD-ROM (CHINESE(SIMPLIFIED))
122	VQT0T15	INSTRUCTION BOOK FOR CD-ROM (PORTUGUESE/SPANISH/SWEDISH/DANI
122	VQT0T20	INSTRUCTION BOOK FOR CD-ROM (ENGLISH)
122	VQT0T18	INSTRUCTION BOOK FOR CD-ROM (ENGLISH/POLISH/CZECH/HANGARIAN)
122	VQT0T27	INSTRUCTION BOOK FOR CD-ROM (RUSSIAN/UKRAINIAN)
122	VQT0T23	INSTRUCTION BOOK FOR CD-ROM (CHINESE(TRADITIONAL)/ENGLISH/RUSS ARABIC)
123	LSQT1038-A	INSTRUCTION BOOK FOR CD-ROM (TURKISH)
125	K2CR2DA00004	AC CORD W/PLUG
126	K2CJ2DA00011	AC CORD W/PLUG
127	RJA0053-3X	AC CORD W/PLUG
128	K2CA2CA00020	AC CORD W/PLUG
133	LSPF0107	POLY BAG
201	VXY1892Z1	MAIN CHASSIS UNIT
202	VEG1663-M	CYLINDER UNIT
203	VXA8198	CASSETTE UP UNIT
207	VXR0401	T-REEL TABLE
208	VMB3766	CASSETTE UP SPRING

Ref. No.	Part No.	Part Name & Description
433	XQN16+BJ6FN	SCREW,STEEL
441	VHD1133	SCREW,STEEL
450	XQN16+B4FN	SCREW,STEEL
519	XQN16+BF4FN	SCREW,STEEL
524	XQN16+BJ4FNK	SCREW,STEEL
533	XQN16+BJ4FN	SCREW,STEEL
534	VHD1757	SCREW,STEEL
535	XQN14+B2FN	SCREW,STEEL
536	XQN16+AJ4FN	SCREW,STEEL
537	XQN16+BJ5FN	SCREW,STEEL
538	XQN14+BJ4FN	SCREW,STEEL
540	XQN16+BF3FN	SCREW,STEEL
545	XQN16+BF25FN	SCREW,STEEL
701	LSEK0628	ELECTRIC CODENSER MICROPHONE UNIT
702	LSMG0136	MIC DAMPER
703	LSSC0832	FRONT EARTH PLATE
704	B3RAB0000039	INFRARED RECEIVER
705	LSJB8337	FRONT FLEXIBLE PRINTED CIRCUIT
721	K1NA09E00063	SD UNIT
E10	LSEP8330P1	MAIN P.C.B.
E10	LSEP8330R1	MAIN P.C.B.
E10	LSEP8330S1	MAIN P.C.B.
E10	LSEP8330Q1	MAIN P.C.B.
E20	LSEP8331P1	CAMERA P.C.B.
E20	LSEP8331R1	CAMERA P.C.B.
E20	LSEP8331Q1	CAMERA P.C.B.
E20	LSEP8331S1	CAMERA P.C.B.
E30	LSEP8332A1	FRONT P.C.B.
E30	LSEP8332C1	FRONT P.C.B.
E30	LSEP8332D1	FRONT P.C.B.
E40	LSEP8334A1	LIQUID CRYSTAL DISPLAY BACKLIGHT P.C.B. NR
E50	LSEQ0819	CCD P.C.B. NR

SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFM3110EDS	COLOR BAR STANDARD TAPE	SPC
	VFK1451	DVC HEAD CLEANING TAPE	SPC
	LSVQ0028	PLIER FOR NON ZIF CONNECTOR	
	LSUQ0050	GREASE	
	LSUA0019	EXTENSION CABLE 8P	
	LSUA0016	EXTENSION CABLE 10P	
	VUVS0015	EXTENSION CABLE 28P	
	LSUA0060	EXTENSION CABLE 90P	
	LSUA0017	EXTENSION CABLE 18P	
	VUVS0012	EXTENSION CABLE 22P	
	VFK1164LBX1	LIGHT BOX	SPC
	VFK1164TCM02	INFINITY LENS (WITH FOCUS CHART)	SPC
	VFK1164TAR58	ATTACHMENT RING (58mm)	SPC
	VFK1164TAR55	ATTACHMENT RING (55mm)	SPC
	VFK1164TAR52	ATTACHMENT RING (52mm)	SPC
	VFK1164TAR49	ATTACHMENT RING (49mm)	SPC
	VFK1164TAR46	ATTACHMENT RING (46mm)	SPC
	VFK1164TAR43	ATTACHMENT RING (43mm)	SPC
	VFK1164TAR37	ATTACHMENT RING (37mm)	SPC
	VFK1164TAR3A	ATTACHMENT RING (30.5mm)	SPC
	VFK1164TAR27	ATTACHMENT RING (27mm)	SPC
	VFK1164TFCT2	COLOR CONVERSION FILTER (C14)	SPC
	VFK1899	POST HEIGHT ADJUSTMENT FIXTURE	SPC
	VFK1164TFWC2	WHITE CHART	SPC
	VFK1164TFCB2	COLOR BAR CHART	SPC
	VFK1164TFGS2	GRAY SCALE CHART	SPC

15.2. ELECTRICAL REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. All parts are supplied from PSEC.

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	LSEP8330P1	MAIN P.C.B.	E.S.D. RTL 24EG,26GK,27E/ EB/EF/EG/EP/EE/ GC/GN
E10	LSEP8330R1	MAIN P.C.B.	E.S.D. RTL 37E/ EB/EG/EP
E10	LSEP8330S1	MAIN P.C.B.	E.S.D. RTL 37EK,57EE/ GC,58GK
E10	LSEP8330Q1	MAIN P.C.B.	E.S.D. RTL 47EE/ GC
E20	LSEP8331P1	CAMERA P.C.B.	E.S.D. RTL 24EG,26GK,27E/ EB/EF/EG/EP/EE/ GC/GN
E20	LSEP8331R1	CAMERA P.C.B.	E.S.D. RTL 37E/ EB/EG/EK/EP
E20	LSEP8331Q1	CAMERA P.C.B.	E.S.D. RTL 47EE/ GC
E20	LSEP8331S1	CAMERA P.C.B.	E.S.D. RTL 57EE/ GC,58GK
E30	LSEP8332A1	FRONT P.C.B.	RTL 24EG,26GK,27E/ EB/EF/EG/EP/EE/ GC/GN
E30	LSEP8332C1	FRONT P.C.B.	RTL 37E/EB/EG/ EK/EP,57EE/ GC,58GK
E30	LSEP8332D1	FRONT P.C.B.	RTL 47EE/GC
E40	LSEP8334A1	LIQUID CRYSTAL DISPLAY BACKLIGHT P.C.B. NR	
E50	LSEQ0819	CCD P.C.B. NR	

15.2.1. MAIN P.C.B.

FPC CONNECTORS

Ref. No.	Part No.	Part Name & Description	Remarks
FP1	K1MN08BA0088	CONNECTOR 8P	
FP2	K1MN18BA0197	CONNECTOR 18P	
FP3	K1MN10BA0197	CONNECTOR 10P	
FP4	K1MN18BA0088	CONNECTOR 18P	
FP5	K1MN08BA0088	CONNECTOR 8P	
FP6	K1MN12BA0088	CONNECTOR 12P	
FP8	K1MN28BA0196	CONNECTOR 28P	
FP10	K1MN18BA0091	CONNECTOR 18P	
FP7001	K1MN10BA0197	CONNECTOR 10P	

15.2.2. CAMERA P.C.B.

FPC CONNECTORS

Ref. No.	Part No.	Part Name & Description	Remarks
FP301	K1MN14BA0197	CONNECTOR 14P	
FP701	K1MN22BA0197	CONNECTOR 22P	
FP9902	K1MN22A00065	CONNECTOR 22P	37E/EB/EG/EK/ EP,57EE/ GC,58GK
FP9903	K1MN16A00077	CONNECTOR 16P	24EG,26GK,27E/ EB/EF/EG/EP/EE/ GC/GN,47EE/GC

15.2.3. FRONT P.C.B.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC4801	C0ABBB000369	IC, LINEAR	
or IC4801	C0ABBB000262	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4301	2SD1819ARL	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
Q4302	2SD1819ARL	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
Q4305	2SB1218ARL	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
Q4306	UNR9112J08	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
or Q4306	B1GDCFLL0019	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
or Q4306	B1GDCFLL0020	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
Q4307	UNR9213J08	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
or Q4307	B1GBCFNN0029	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
or Q4307	B1GBCFNN0030	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/ EP,57EE/ GC,58GK
Q4801	2SD2216J08	TRANSISTOR SI NPN CHIP	
or Q4801	B1ABCF000104	TRANSISTOR SI NPN CHIP	
Q6501	2SD10300SL	TRANSISTOR SI NPN CHIP	
Q6502	2SD2216J08	TRANSISTOR SI NPN CHIP	
or Q6502	B1ABCF000104	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4301	B3AFB0000126	LIGHT EMITTING DIODE RED	37E/EB/EG/EK/ EP,57EE/ GC,58GK
D4302	B0BC6R2A0127	DIODE ZENER CHIP 6.2V	37E/EB/EG/EK/ EP,57EE/ GC,58GK
D4303	B0BC6R2A0127	DIODE ZENER CHIP 6.2V	37E/EB/EG/EK/ EP,57EE/ GC,58GK
D6503	MA3S132D0L	DIODE SI CHIP	
D6504	B3GA00000041	LIGHT EMITTING DIODE	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4301	D0HB470ZA003	MGF CHIP 1/16W 47	37E/EB/EG/EK/ EP,57EE/ GC,58GK
R4302	D0HB470ZA003	MGF CHIP 1/16W 47	37E/EB/EG/EK/ EP,57EE/ GC,58GK
R4305	ERA3YED472V	MGF CHIP 1/16W 4.7K	37E/EB/EG/EK/ EP,57EE/ GC,58GK
R4306	ERA3YED333V	MGF CHIP1/16W 33K	37E/EB/EG/EK/ EP,57EE/ GC,58GK
R4307	ERA3YED682V	MGF CHIP1/16W 6.8K	37E/EB/EG/EK/ EP,57EE/ GC,58GK
R4308	ERJ3GEY0R00V	MGF CHIP 1/16W 0	37E/EB/EG/EK/ EP,57EE/ GC,58GK
R4802	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R4803	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R4804	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R4805	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R4806	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R4807	D0HB392ZA002	MGF CHIP 1/16W 3.9K	
R4808	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R4809	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R4810	D0HB392ZA002	MGF CHIP 1/16W 3.9K	
R6501	ERJ3GEYJ560V	MGF CHIP 1/16W 56	37E/EB/EG/EK/ EP,47EE/ GC,57EE/ GC,58GK
R6502	ERJ3GEYJ683V	MGF CHIP 1/16W 68K	37E/EB/EG/EK/ EP,47EE/ GC,57EE/ GC,58GK
R6503	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R6504	ERJ3GEYJ106V	MGF CHIP 1/16W 10M	
R6505	ERJ3GEYJ225V	MGF CHIP 1/16W 2.2M	
R6506	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R6507	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	
R6508	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R6509	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4301	F1H1A105A028	C CHIP 10V 1UF	37E/EB/EG/EK/ EP,57EE/ GC,58GK
C4801	F1H1A105A028	C CHIP 10V 1UF	
C4802	F1H1A105A028	C CHIP 10V 1UF	
C4803	ECJ2FB0J106K	C CHIP 6.3V 10UF	
C4804	F1H1H822A219	C CHIP 50V 8200PF	
C4805	F1H1C273A041	C CHIP 16V 0.027UF	
C4806	F1H1C273A041	C CHIP 16V 0.027UF	
C4808	F1H1C273A041	C CHIP 16V 0.027UF	
C4809	F1H1H822A219	C CHIP 50V 8200PF	
C4810	F1H1C273A041	C CHIP 16V 0.027UF	
C4812	F3F0J226A055	TANTALUM CHIP 6.3V 22UF	
C6501	F3F0J106A032	TANTALUM CHIP 6.3V 10UF	37E/EB/EG/EK/ EP,47EE/ GC,57EE/ GC,58GK
C6502	F1H1C104A008	C CHIP 16V 0.1UF	37E/EB/EG/EK/ EP,47EE/ GC,57EE/ GC,58GK
C6503	F1H0J474A002	C CHIP 6.3V 0.47UF	
C6504	F1H1C104A041	C CHIP 16V 0.1UF	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP6501	K1MN12BA0089	CONNECTOR 12P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
701	LSEK0628	ELECTRIC CODENSER MICROPHONE UNIT	
702	LSMG0136	MIC DAMPER	
703	LSSC0832	FRONT EARTH PLATE	
704	B3RAB0000039	INFRARED RECEIVER	37E/EB/EG/EK/ EP,47EE/ GC,57EE/ GC,58GK
705	LSJB8337	FRONT FLEXIBLE PRINTED CIRCUIT	

15.2.4. LIQUID CRYSTAL DISPLAY BACKLIGHT P.C.B. NR

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q8101	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8102	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8103	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8104	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8105	XP0450100L	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8106	XP0440100L	TRANSISTOR COMPLX CMP SI PNP CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D8109	MA2S728008	DIODE SI CHIP	
or D8109	B0JCDD000002	DIODE SI CHIP	
or D8109	MA2S72800L	DIODE SI CHIP	
D8110	MA2S728008	DIODE SI CHIP	
or D8110	B0JCDD000002	DIODE SI CHIP	
or D8110	MA2S72800L	DIODE SI CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R8101	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8102	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8103	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8104	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8105	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8106	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8107	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8108	D0HB470ZA003	MGF CHIP 1/16W 47	
R8109	D0HB470ZA003	MGF CHIP 1/16W 47	
R8110	D0HB470ZA003	MGF CHIP 1/16W 47	
R8111	D0HB470ZA003	MGF CHIP 1/16W 47	
R8112	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8113	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8114	ERA3YKD104V	MGF CHIP 1/16W 100K	
R8115	ERA3YED123V	MGF CHIP 1/16W 12K	
R8116	ERA3YKD184V	MGF CHIP 1/16W 180K	
R8117	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8118	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8119	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R8120	ERJ3GEYJ113V	MGF CHIP 1/16W 11K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C8101	F1H1H471A737	C CHIP 50V 470PF	
C8102	F1H1H471A737	C CHIP 50V 470PF	
C8103	F1H1H471A737	C CHIP 50V 470PF	
C8104	F1J1C2250003	C CHIP 16V 2.2UF	
C8105	F1J1C2250003	C CHIP 16V 2.2UF	
C8106	F1H1C104A041	C CHIP 16V 0.1UF	
C8107	ECJ3YB1C475K	C CHIP 16V 4.7UF	
C8108	F1J1C1050028	C CHIP 16V 1UF	
C8109	F1J1C1050028	C CHIP 16V 1UF	
C8110	F1J1C1050028	C CHIP 16V 1UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L8101	G1C100M00010	COIL CHIP 10UH	
L8102	G1C100M00010	COIL CHIP 10UH	
L8103	G1C100M00010	COIL CHIP 10UH	
L8104	G1C100M00010	COIL CHIP 10UH	

FPC CONNECTORS

Ref. No.	Part No.	Part Name & Description	Remarks
FP8101	K1MN26BA0196	CONNECTOR 26P	
FP8102	K1MN24BA0196	CONNECTOR 24P	

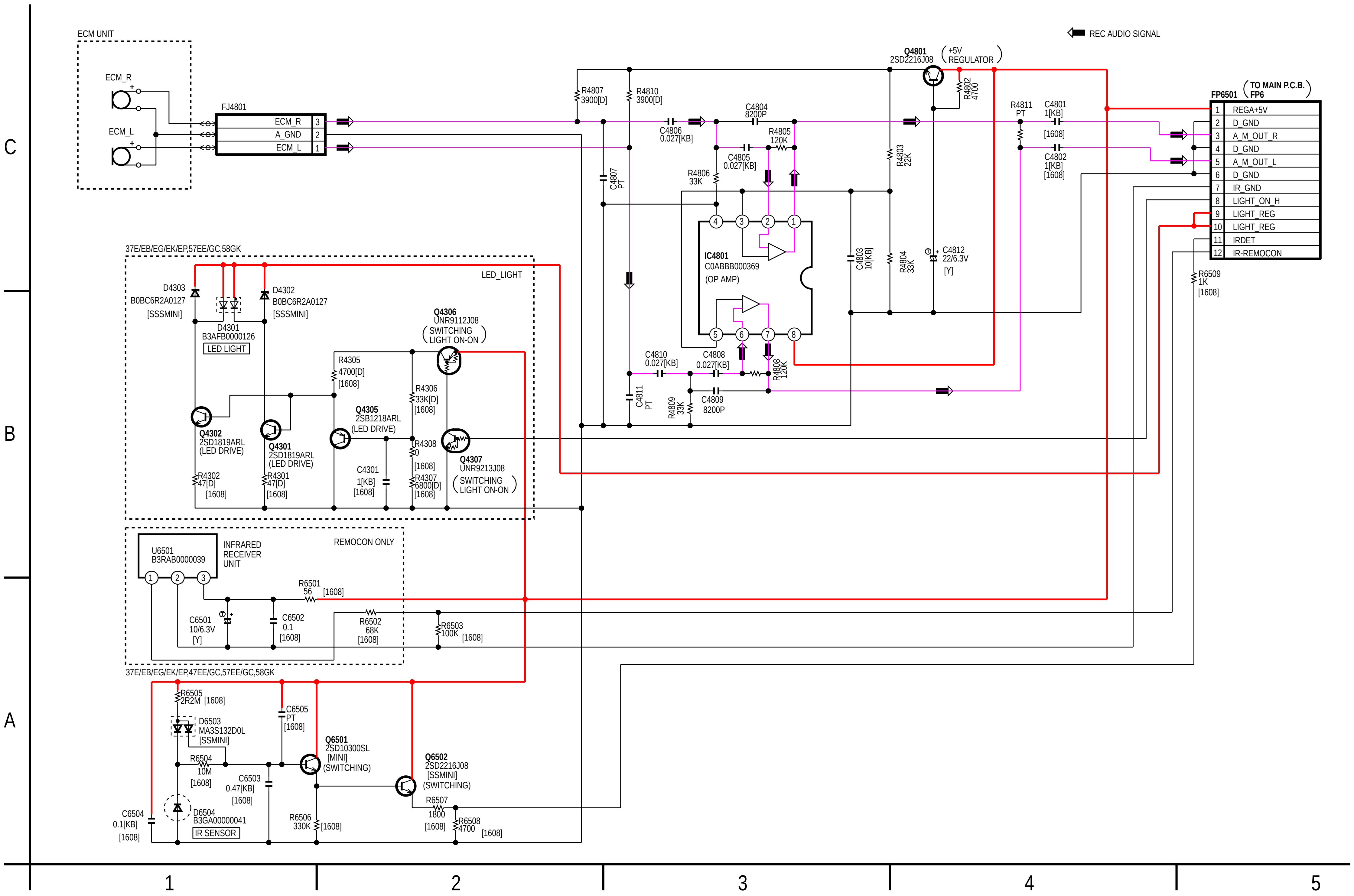
16. Schematic Diagrams for Printing with Letter Size

FRONT SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



REC AUDIO SIGNAL
ECM UNIT
ECM_R
ECM_L
FJ4801
ECM_R 3
A_GND 2
ECM_L 1
Q4801 2SD2216J08 (+5V REGULATOR)
R4802 4700
R4807 3900[D]
R4810 3900[D]
C4806 0.027[KB]
C4804 8200P
R4805 120K
C4805 0.027[KB]
R4806 33K
C4807 PT
R4803 22K
R4811 PT
C4801 1[KB] [1608]
C4802 1[KB] [1608]
FP6501 (TO MAIN P.C.B. FP6)
1 REGA+5V
2 D_GND
3 A_M_OUT_R
4 D_GND
5 A_M_OUT_L
6 D_GND
7 IR_GND
8 LIGHT_ON_H
9 LIGHT_REG
10 LIGHT_REG
11 IRDET
12 IR-REMOCON
R6509 1K [1608]
IC4801 C0ABBB000369 (OP AMP)
C4803 10[KB]
R4804 33K
C4812 22/6.3V [Y]
C4810 0.027[KB]
C4808 0.027[KB]
R4808 120K
C4811 PT
R4809 33K
C4809 8200P
37E/EB/EG/EK/EP,57EE/GC,58GK
LED_LIGHT
D4303 B0BC6R2A0127 [SSSMINI]
D4302 B0BC6R2A0127 [SSSMINI]
D4301 B3AFB0000126
LED LIGHT
Q4306 UNR9112J08 (SWITCHING LIGHT ON-ON)
R4305 4700[D] [1608]
R4306 33K[D] [1608]
Q4305 2SB1218ARL (LED DRIVE)
Q4302 2SD1819ARL (LED DRIVE)
Q4301 2SD1819ARL (LED DRIVE)
R4308 0 [1608]
Q4307 UNR9213J08 (SWITCHING LIGHT ON-ON)
R4302 47[D] [1608]
R4301 47[D] [1608]
C4301 1[KB] [1608]
R4307 6800[D] [1608]
U6501 B3RAB0000039
INFRARED RECEIVER UNIT
REMOCON ONLY
R6501 56 [1608]
C6501 10/6.3V [Y]
C6502 0.1 [1608]
R6502 68K [1608]
R6503 100K [1608]
37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
R6505 2R2M [1608]
C6505 PT [1608]
D6503 MA3S132D0L [SSMINI]
Q6501 2SD1030OSL [MINI] (SWITCHING)
Q6502 2SD2216J08 [SSMINI] (SWITCHING)
R6504 10M [1608]
C6503 0.47[KB] [1608]
C6504 0.1[KB] [1608]
D6504 B3GA00000041
IR SENSOR
R6506 330K [1608]
R6507 1800 [1608]
R6508 4700 [1608]
C
B
A
1
2
3
4
5

LSJB8332
FRONT SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

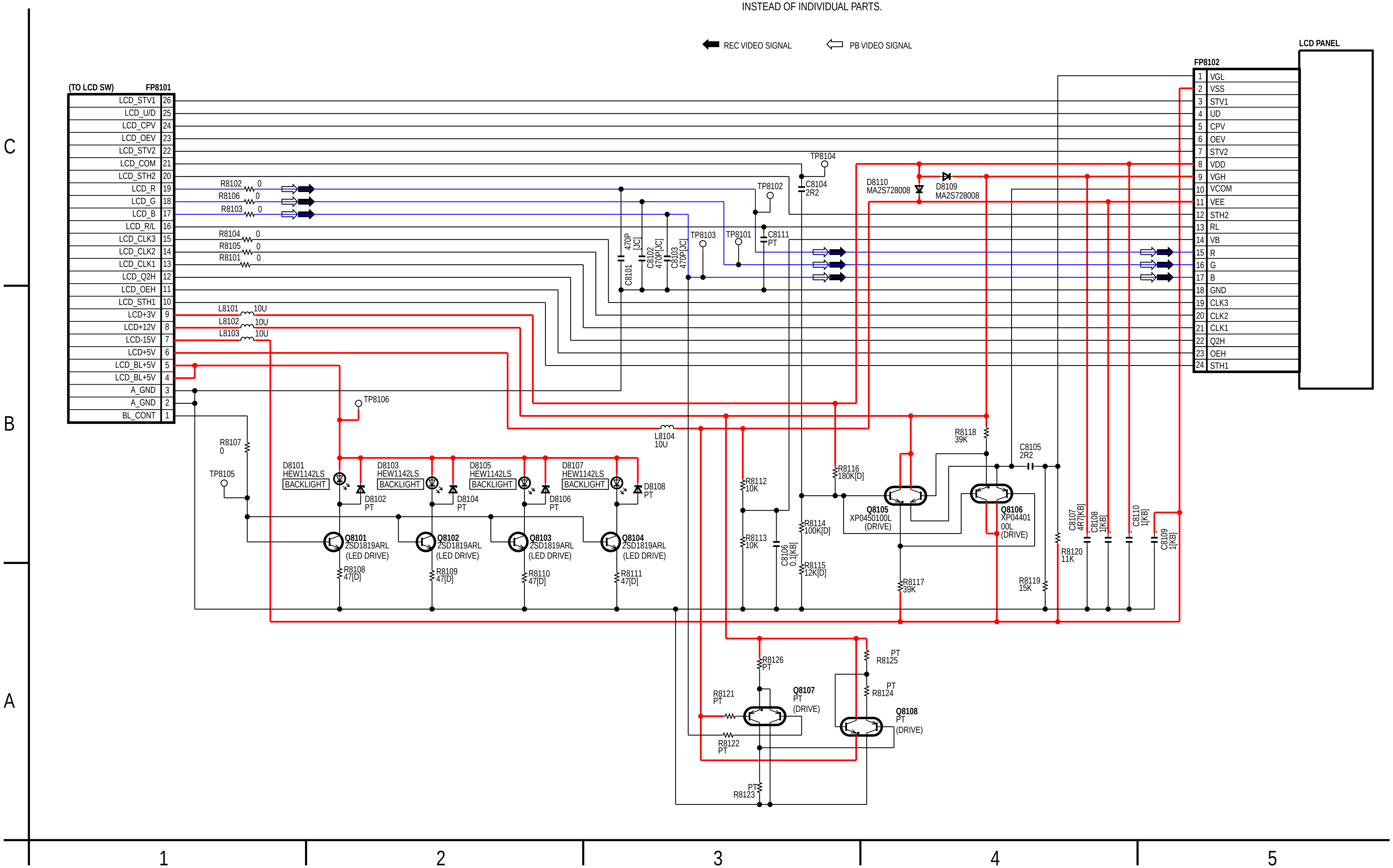
LCD BACKLIGHT SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
ALL INDIVIDUAL PARTS EXCEPT D8101, D8103, D8105, AND D8107
ON LCD BACKLIGHT P.C.B. ARE SUPPLIED AS REPLACEMENT PARTS.
WHEN SERVICING THESE PARTS, REPLACE LCD BACKLIGHT P.C.B.
INSTEAD OF INDIVIDUAL PARTS.


REC VIDEO SIGNAL
PB VIDEO SIGNAL
(TO LCD SW)
FP8101
LCD_STV1 26
LCD_U/D 25
LCD_CPV 24
LCD_OEV 23
LCD_STV2 22
LCD_COM 21
LCD_STH2 20
LCD_R 19
LCD_G 18
LCD_B 17
LCD_R/L 16
LCD_CLK3 15
LCD_CLK2 14
LCD_CLK1 13
LCD_Q2H 12
LCD_OEH 11
LCD_STH1 10
LCD+3V 9
LCD+12V 8
LCD-15V 7
LCD+5V 6
LCD_BL+5V 5
LCD_BL+5V 4
A_GND 3
A_GND 2
BL_CONT 1
R8102 0
R8106 0
R8103 0
R8104 0
R8105 0
R8101 0
L8101 10U
L8102 10U
L8103 10U
C8101 470P
C8102 470P[JC]
C8103 470P[JC]
[JC]
TP8103
TP8101
TP8102
TP8104
C8104 2R2
C8111 PT
D8110 MA2S728008
D8109 MA2S728008
LCD PANEL
FP8102
1 VGL
2 VSS
3 STV1
4 UD
5 CPV
6 OEV
7 STV2
8 VDD
9 VGH
10 VCOM
11 VEE
12 STH2
13 RL
14 VB
15 R
16 G
17 B
18 GND
19 CLK3
20 CLK2
21 CLK1
22 Q2H
23 OEH
24 STH1
TP8106
TP8105
R8107 0
L8104 10U
D8101 HEW1142LS BACKLIGHT
D8103 HEW1142LS BACKLIGHT
D8105 HEW1142LS BACKLIGHT
D8107 HEW1142LS BACKLIGHT
D8102 PT
D8104 PT
D8106 PT
D8108 PT
Q8101 2SD1819ARL (LED DRIVE)
Q8102 2SD1819ARL (LED DRIVE)
Q8103 2SD1819ARL (LED DRIVE)
Q8104 2SD1819ARL (LED DRIVE)
R8108 47[D]
R8109 47[D]
R8110 47[D]
R8111 47[D]
R8112 10K
R8113 10K
C8106 0.1[KB]
R8114 100K[D]
R8115 12K[D]
R8116 180K[D]
Q8105 XP0450100L (DRIVE)
Q8106 XP04401 00L (DRIVE)
R8117 39K
R8118 39K
C8105 2R2
R8119 15K
R8120 11K
C8107 4R7[KB]
C8108 1[KB]
C8110 1[KB]
C8109 1[KB]
R8126 PT
R8125 PT
R8124 PT
R8121 PT
R8122 PT
R8123 PT
Q8107 PT (DRIVE)
Q8108 PT (DRIVE)
C
B
A
1
2
3
4
5

LSJB8334
LCD BACKLIGHT SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

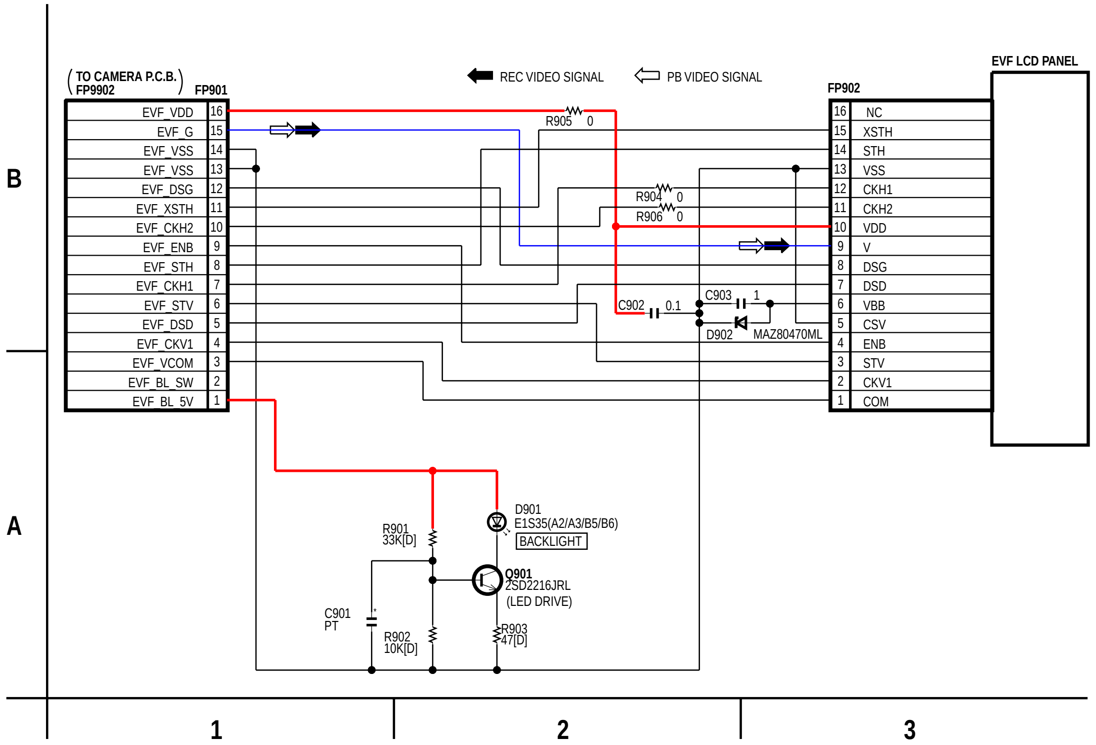
NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

EVF BACKLIGHT SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS47EE/GC

“FOR REFERENCE ONLY”

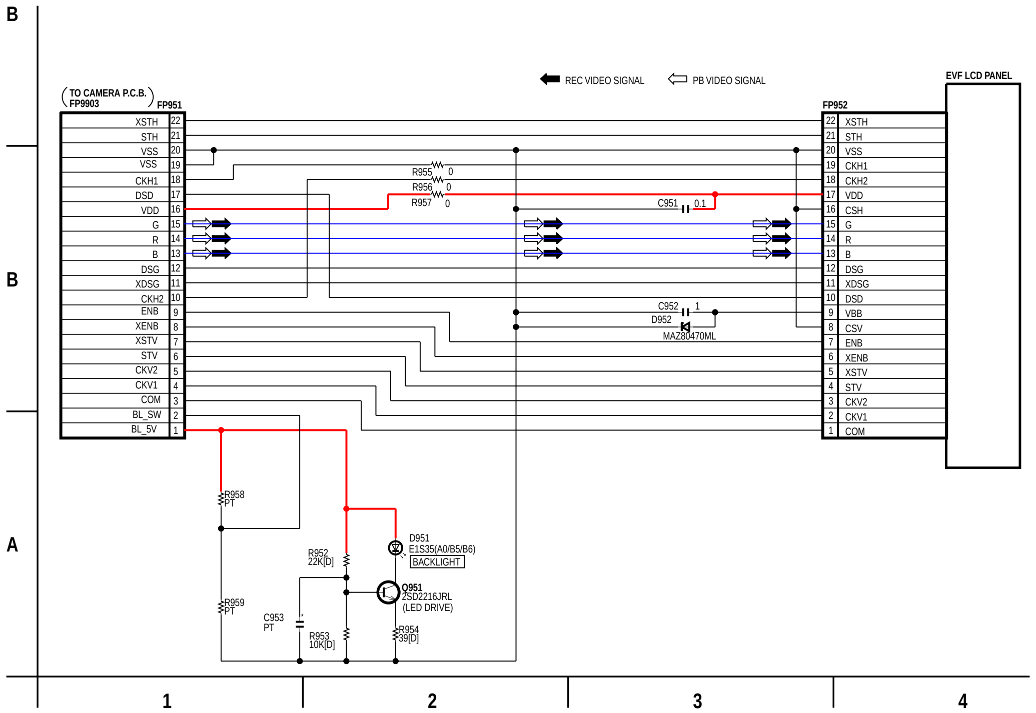
NOTE:
EVF BACKLIGHT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
A
1
2
3
TO CAMERA P.C.B. FP9902
FP901
REC VIDEO SIGNAL
PB VIDEO SIGNAL
FP902
EVF LCD PANEL
EVF_VDD 16
EVF_G 15
EVF_VSS 14
EVF_VSS 13
EVF_DSG 12
EVF_XSTH 11
EVF_CKH2 10
EVF_ENB 9
EVF_STH 8
EVF_CKH1 7
EVF_STV 6
EVF_DSD 5
EVF_CKV1 4
EVF_VCOM 3
EVF_BL_SW 2
EVF_BL_5V 1
16 NC
15 XSTH
14 STH
13 VSS
12 CKH1
11 CKH2
10 VDD
9 V
8 DSG
7 DSD
6 VBB
5 CSV
4 ENB
3 STV
2 CKV1
1 COM
R905 0
R904 0
R906 0
C902 0.1
C903 1
D902 MAZ80470ML
D901
E1S35(A2/A3/B5/B6)
BACKLIGHT
R901
33K[D]
Q901
2SD2216JRL
(LED DRIVE)
C901
PT
R902
10K[D]
R903
47[D]

EVF BACKLIGHT SCHEMATIC DIAGRAM NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK

“FOR REFERENCE ONLY”

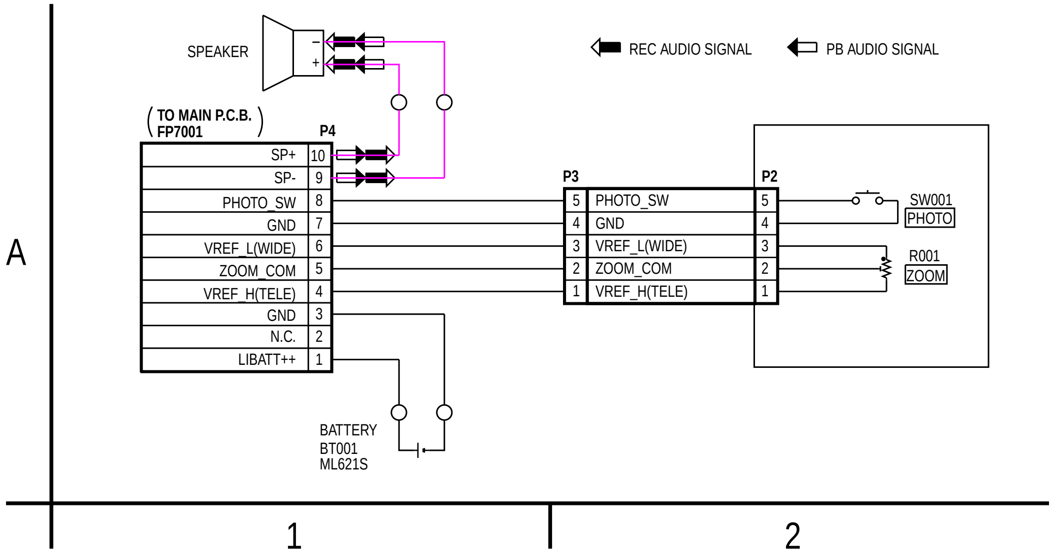
NOTE:
EVF BACKLIGHT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
B
A
1
2
3
4
TO CAMERA P.C.B. FP9903
FP951
REC VIDEO SIGNAL
PB VIDEO SIGNAL
FP952
EVF LCD PANEL
XSTH 22
STH 21
VSS 20
VSS 19
CKH1 18
DSD 17
VDD 16
G 15
R 14
B 13
DSG 12
XDSG 11
CKH2 10
ENB 9
XENB 8
XSTV 7
STV 6
CKV2 5
CKV1 4
COM 3
BL_SW 2
BL_5V 1
22 XSTH
21 STH
20 VSS
19 CKH1
18 CKH2
17 VDD
16 CSH
15 G
14 R
13 B
12 DSG
11 XDSG
10 DSD
9 VBB
8 CSV
7 ENB
6 XENB
5 XSTV
4 STV
3 CKV2
2 CKV1
1 COM
R955 0
R956 0
R957 0
C951 0.1
C952 1
D952
MAZ80470ML
R958
PT
R959
PT
C953
PT
R952
22K[D]
R953
10K[D]
D951
E1S35(A0/B5/B6)
BACKLIGHT
Q951
2SD2216JRL
(LED DRIVE)
R954
39[D]

CASSETTE COVER SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
CASSETTE COVER UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


A
1
2
SPEAKER
REC AUDIO SIGNAL
PB AUDIO SIGNAL
TO MAIN P.C.B. FP7001
P4
SP+ 10
SP- 9
PHOTO_SW 8
GND 7
VREF_L(WIDE) 6
ZOOM_COM 5
VREF_H(TELE) 4
GND 3
N.C. 2
LIBATT++ 1
P3
P2
5 PHOTO_SW 5
4 GND 4
3 VREF_L(WIDE) 3
2 ZOOM_COM 2
1 VREF_H(TELE) 1
SW001
PHOTO
R001
ZOOM
BATTERY
BT001
ML621S

EVF BACKLIGHT SCHEMATIC DIAGRAM
CASSETTE COVER SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

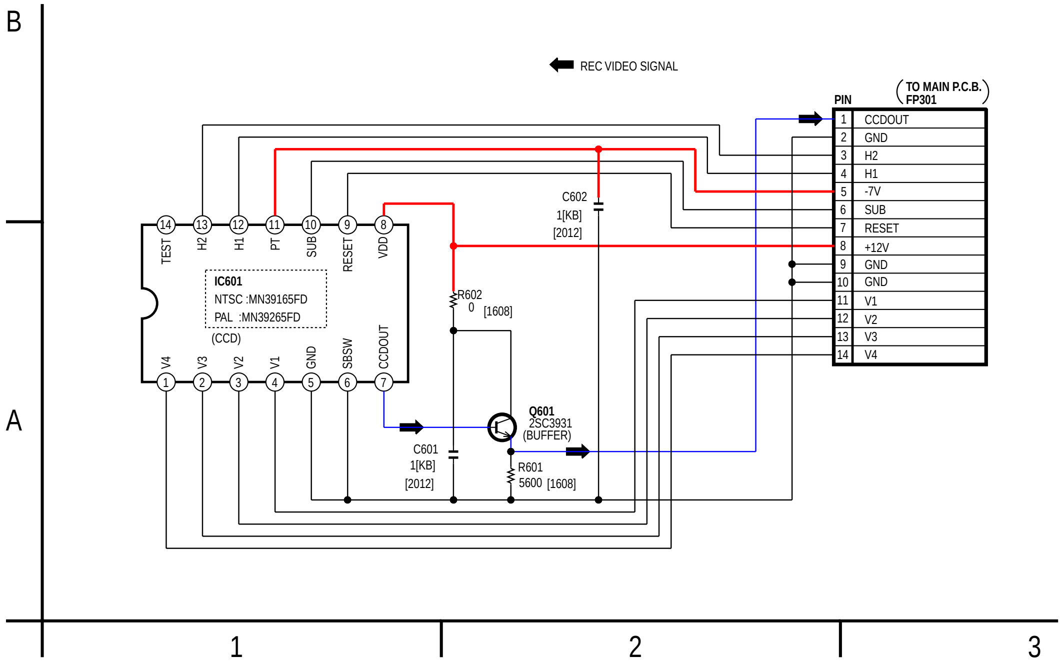
NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

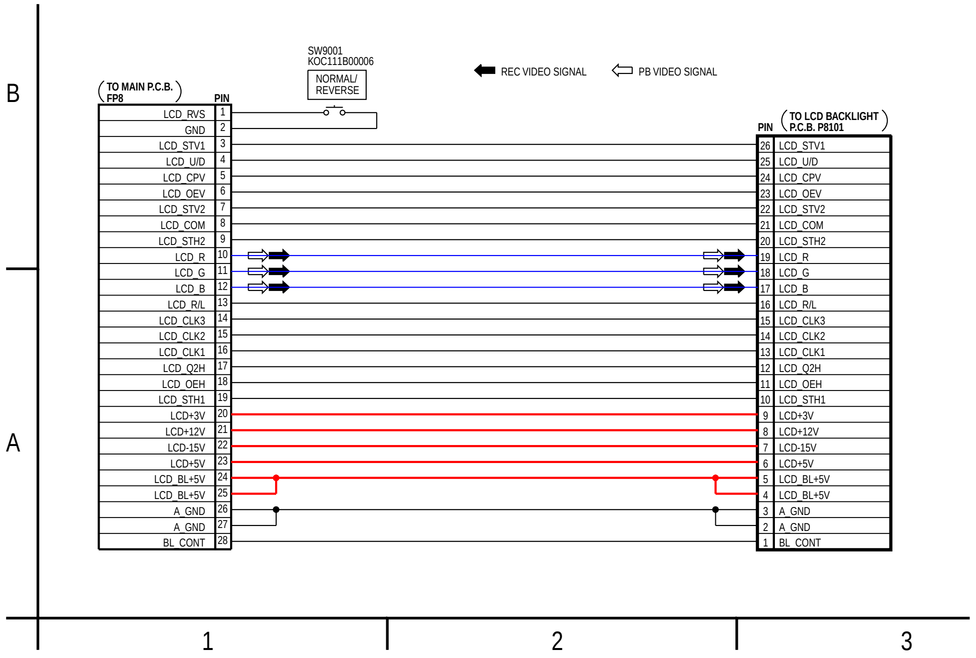
CCD SCHEMATIC DIAGRAM
“FOR REFERENCE ONLY”

NOTE:
CCD P.C.B. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
A
1
2
3
REC VIDEO SIGNAL
TO MAIN P.C.B. FP301
PIN
1 CCDOUT
2 GND
3 H2
4 H1
5 -7V
6 SUB
7 RESET
8 +12V
9 GND
10 GND
11 V1
12 V2
13 V3
14 V4
14 TEST
13 H2
12 H1
11 PT
10 SUB
9 RESET
8 VDD
1 V4
2 V3
3 V2
4 V1
5 GND
6 SBSW
7 CCDOUT
IC601
NTSC :MN39165FD
PAL :MN39265FD
(CCD)
C602
1[KB]
[2012]
R602
0 [1608]
Q601
2SC3931
(BUFFER)
C601
1[KB]
[2012]
R601
5600 [1608]

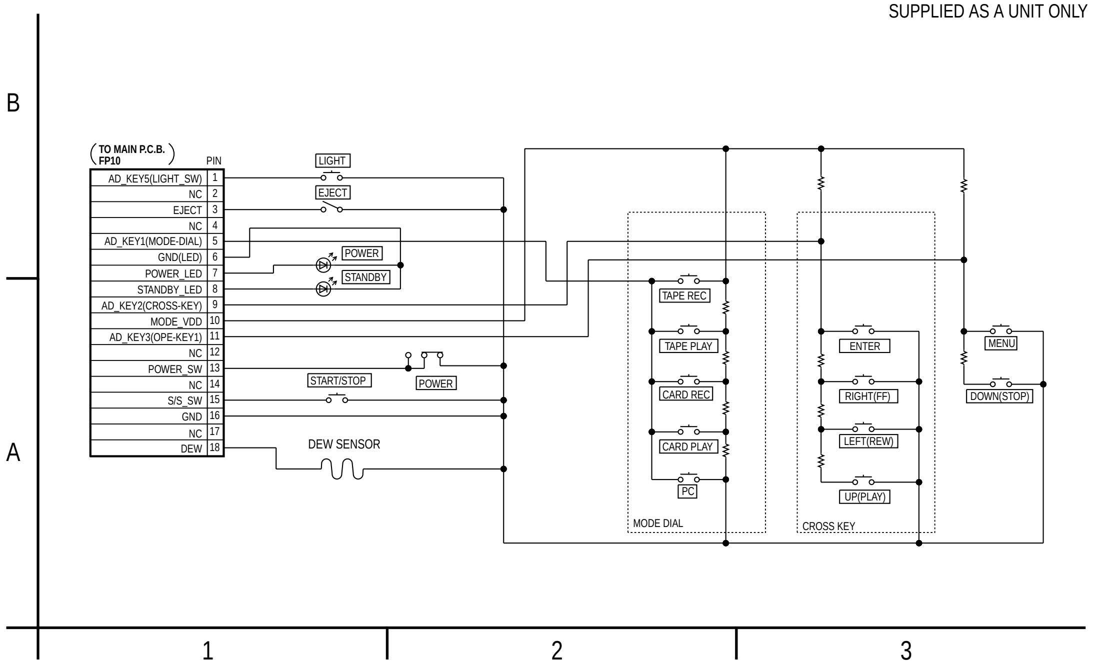
LCD SW SCHEMATIC DIAGRAM
“FOR REFERENCE ONLY”

NOTE:
LCD SW IS NOT SERVICEABLE AND IS
SUPPLIED AS A R SHAFT CASE UNIT ONLY FOR REPLACEMENT.


B
A
1
2
3
SW9001
KOC111B00006
NORMAL/
REVERSE
REC VIDEO SIGNAL
PB VIDEO SIGNAL
TO MAIN P.C.B. FP8
PIN
1 LCD_RVS
2 GND
3 LCD_STV1
4 LCD_U/D
5 LCD_CPV
6 LCD_OEV
7 LCD_STV2
8 LCD_COM
9 LCD_STH2
10 LCD_R
11 LCD_G
12 LCD_B
13 LCD_R/L
14 LCD_CLK3
15 LCD_CLK2
16 LCD_CLK1
17 LCD_Q2H
18 LCD_OEH
19 LCD_STH1
20 LCD+3V
21 LCD+12V
22 LCD-15V
23 LCD+5V
24 LCD_BL+5V
25 LCD_BL+5V
26 A_GND
27 A_GND
28 BL_CONT
TO LCD BACKLIGHT P.C.B. P8101
PIN
26 LCD_STV1
25 LCD_U/D
24 LCD_CPV
23 LCD_OEV
22 LCD_STV2
21 LCD_COM
20 LCD_STH2
19 LCD_R
18 LCD_G
17 LCD_B
16 LCD_R/L
15 LCD_CLK3
14 LCD_CLK2
13 LCD_CLK1
12 LCD_Q2H
11 LCD_OEH
10 LCD_STH1
9 LCD+3V
8 LCD+12V
7 LCD-15V
6 LCD+5V
5 LCD_BL+5V
4 LCD_BL+5V
3 A_GND
2 A_GND
1 BL_CONT

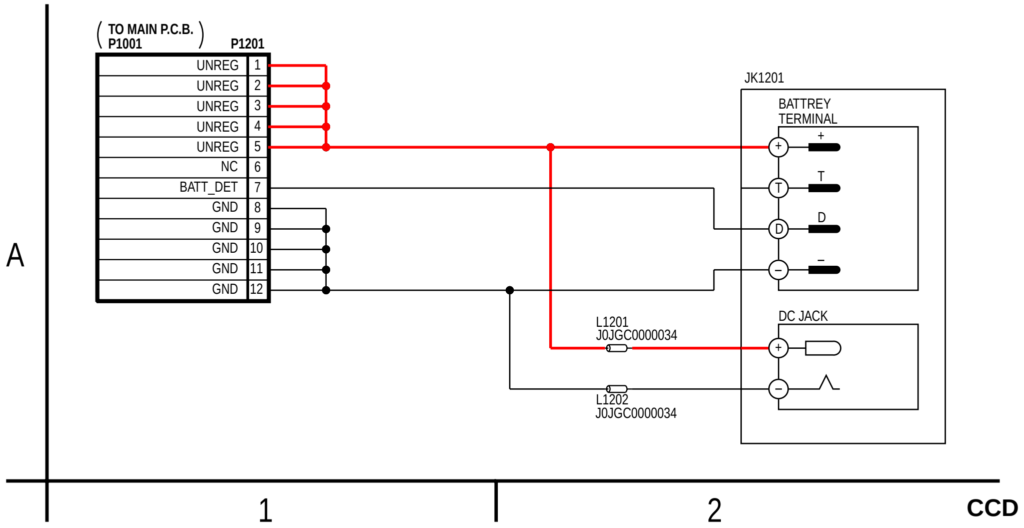
REAR SCHEMATIC DIAGRAM
“FOR REFERENCE ONLY”

NOTE:
REAR UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
A
1
2
3
TO MAIN P.C.B. FP10
PIN
1 AD_KEY5(LIGHT_SW)
2 NC
3 EJECT
4 NC
5 AD_KEY1(MODE-DIAL)
6 GND(LED)
7 POWER_LED
8 STANDBY_LED
9 AD_KEY2(CROSS-KEY)
10 MODE_VDD
11 AD_KEY3(OPE-KEY1)
12 NC
13 POWER_SW
14 NC
15 S/S_SW
16 GND
17 NC
18 DEW
LIGHT
EJECT
POWER
STANDBY
START/STOP
POWER
DEW SENSOR
TAPE REC
TAPE PLAY
CARD REC
CARD PLAY
PC
MODE DIAL
ENTER
RIGHT(FF)
LEFT(REW)
UP(PLAY)
CROSS KEY
MENU
DOWN(STOP)

BATTERY CASE SCHEMATIC DIAGRAM
“FOR REFERENCE ONLY”

NOTE:
BATTERY CASE UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


A
1
2
TO MAIN P.C.B. P1001
P1201
1 UNREG
2 UNREG
3 UNREG
4 UNREG
5 UNREG
6 NC
7 BATT_DET
8 GND
9 GND
10 GND
11 GND
12 GND
JK1201
BATTREY
TERMINAL
+
T
D
–
DC JACK
L1201
J0JGC0000034
L1202
J0JGC0000034

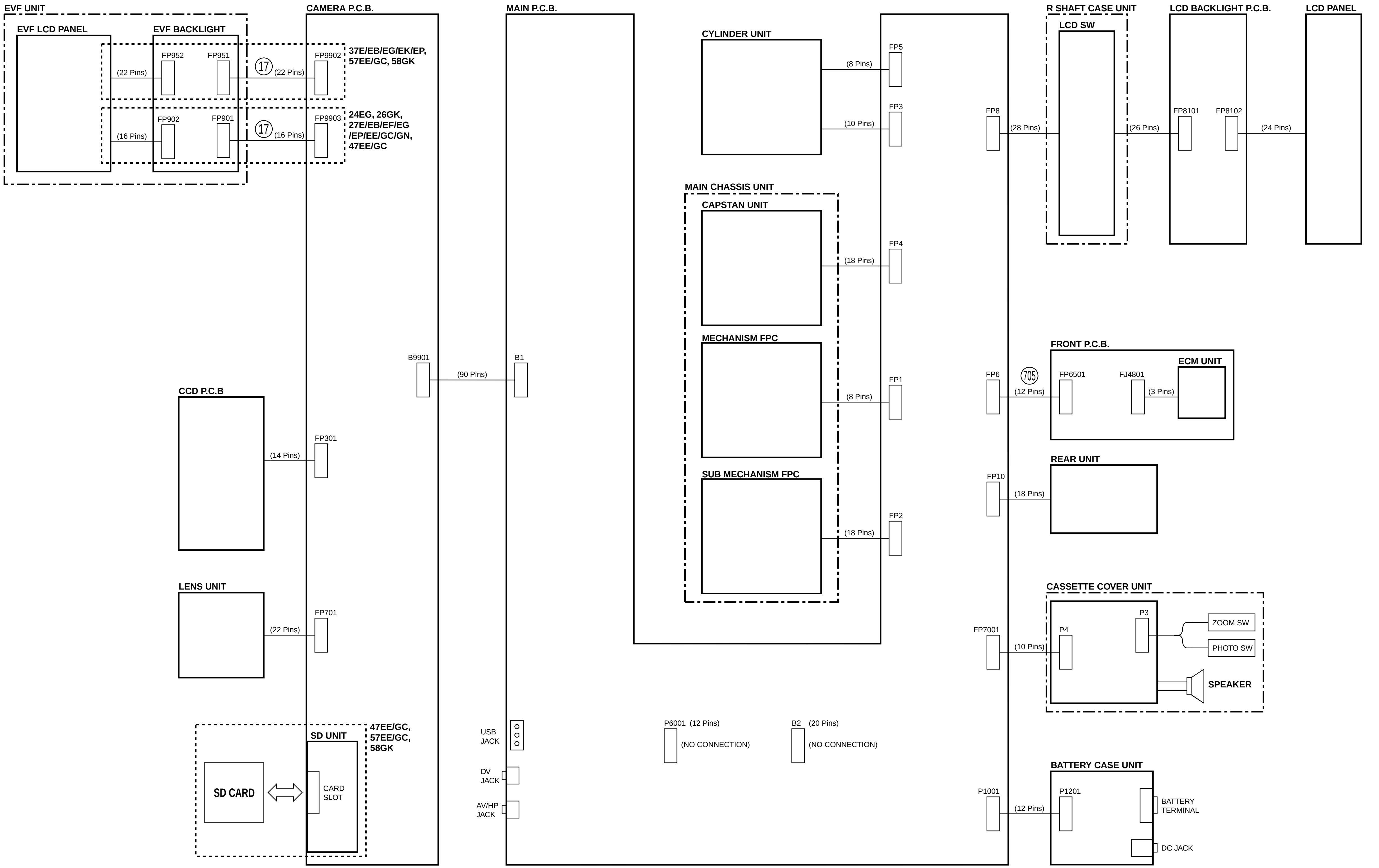
CCD SCHEMATIC DIAGRAM
REAR SCHEMATIC DIAGRAM
LCD SW SCHEMATIC DIAGRAM
BATTERY CASE SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

INTERCONNECTION SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

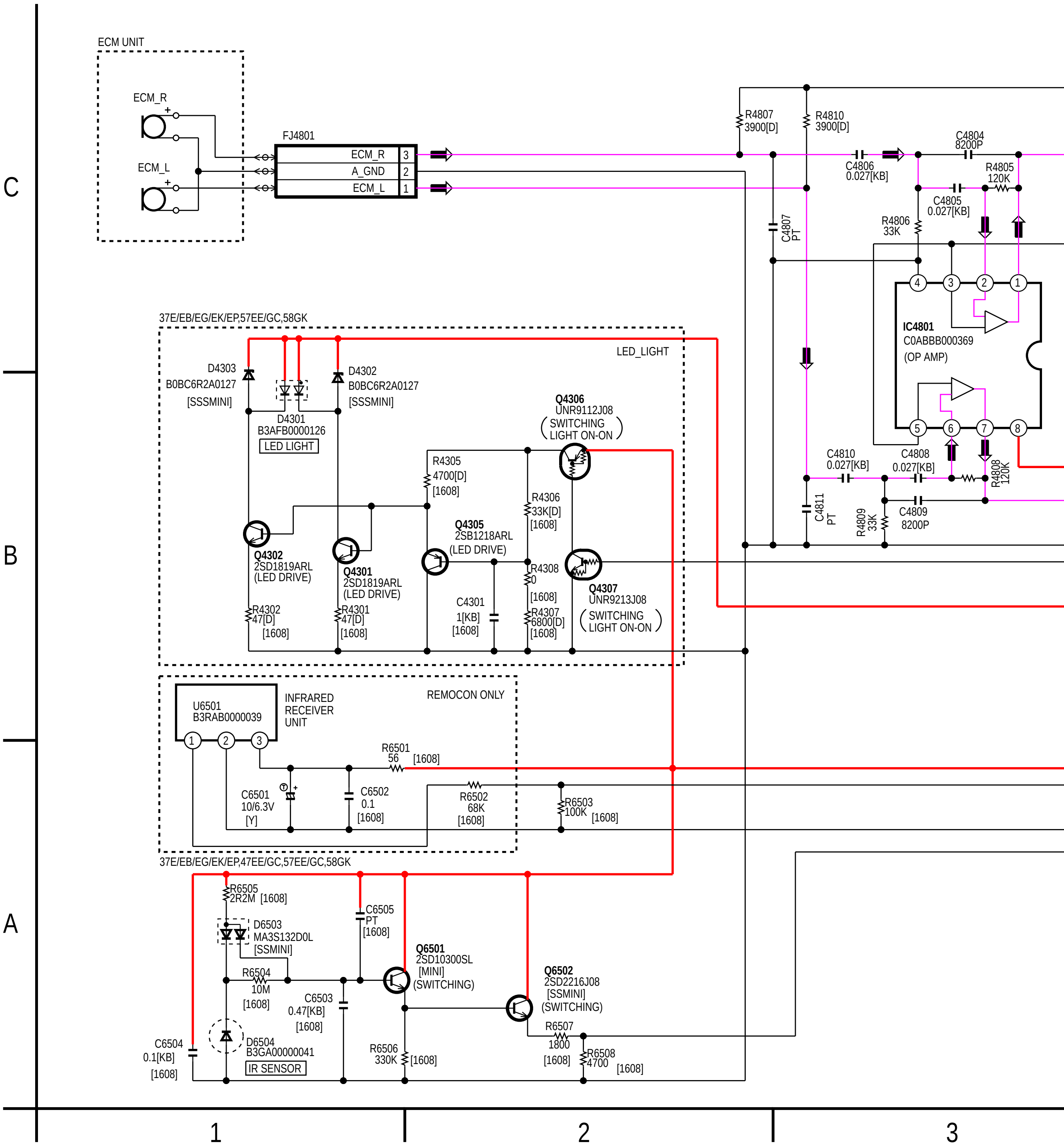

EVF UNIT
EVF LCD PANEL
EVF BACKLIGHT
(22 Pins)
FP952
FP951
⑰
(22 Pins)
FP9902
37E/EB/EG/EK/EP, 57EE/GC, 58GK
(16 Pins)
FP902
FP901
⑰
(16 Pins)
FP9903
24EG, 26GK, 27E/EB/EF/EG /EP/EE/GC/GN, 47EE/GC
CAMERA P.C.B.
MAIN P.C.B.
CYLINDER UNIT
(8 Pins)
FP5
(10 Pins)
FP3
MAIN CHASSIS UNIT
CAPSTAN UNIT
(18 Pins)
FP4
MECHANISM FPC
(8 Pins)
FP1
SUB MECHANISM FPC
(18 Pins)
FP2
B9901
(90 Pins)
B1
CCD P.C.B
(14 Pins)
FP301
LENS UNIT
(22 Pins)
FP701
SD UNIT
47EE/GC, 57EE/GC, 58GK
SD CARD
CARD SLOT
USB JACK
DV JACK
AV/HP JACK
P6001 (12 Pins)
(NO CONNECTION)
B2 (20 Pins)
(NO CONNECTION)
R SHAFT CASE UNIT
LCD SW
LCD BACKLIGHT P.C.B.
LCD PANEL
FP8
(28 Pins)
(26 Pins)
FP8101
FP8102
(24 Pins)
FRONT P.C.B.
ECM UNIT
FP6
(705)
(12 Pins)
FP6501
FJ4801
(3 Pins)
REAR UNIT
FP10
(18 Pins)
CASSETTE COVER UNIT
FP7001
(10 Pins)
P4
P3
ZOOM SW
PHOTO SW
SPEAKER
BATTERY CASE UNIT
P1001
(12 Pins)
P1201
BATTERY TERMINAL
DC JACK

INTERCONNECTION SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12.2. FRONT SCHEMATIC DIAGRAM

FRONT SCHEMATIC DIAGRAM

NOTE: For placing a purchas
be sure to use the par
Do not use the part nu

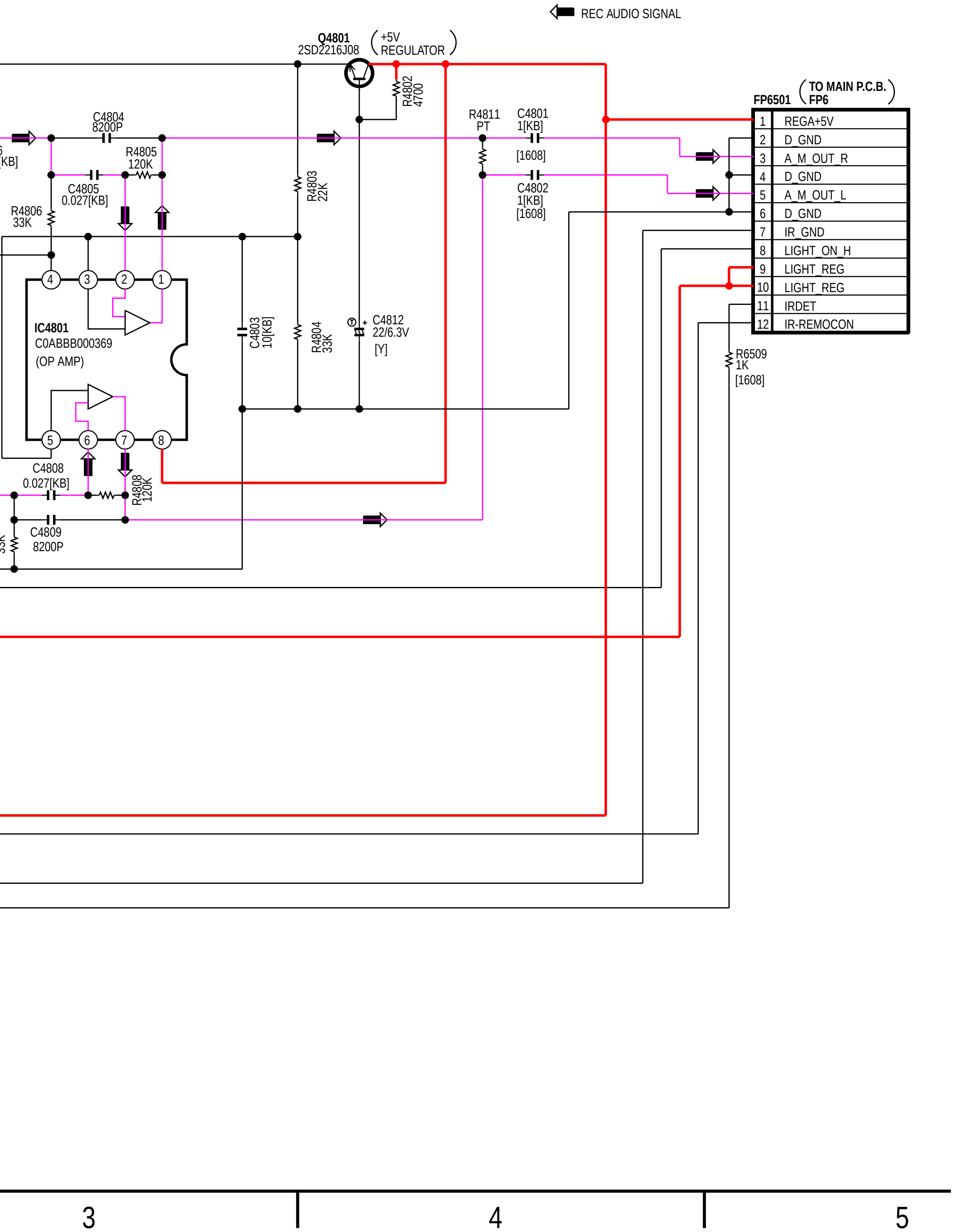


ECM UNIT
ECM_R
ECM_L
FJ4801
ECM_R 3
A_GND 2
ECM_L 1
R4807 3900[D]
R4810 3900[D]
C4806 0.027[KB]
C4804 8200P
R4805 120K
C4805 0.027[KB]
C4807 PT
R4806 33K
IC4801
C0ABBB000369
(OP AMP)
C4810 0.027[KB]
C4808 0.027[KB]
R4808 120K
C4811 PT
R4809 33K
C4809 8200P
37E/EB/EG/EK/EP,57EE/GC,58GK
LED_LIGHT
D4303 B0BC6R2A0127 [SSSMINI]
D4302 B0BC6R2A0127 [SSSMINI]
D4301 B3AFB0000126
LED LIGHT
Q4306 UNR9112J08 (SWITCHING LIGHT ON-ON)
R4305 4700[D] [1608]
R4306 33K[D] [1608]
Q4305 2SB1218ARL (LED DRIVE)
Q4302 2SD1819ARL (LED DRIVE)
Q4301 2SD1819ARL (LED DRIVE)
R4308 0 [1608]
C4301 1[KB] [1608]
R4307 6800[D] [1608]
Q4307 UNR9213J08 (SWITCHING LIGHT ON-ON)
R4302 47[D] [1608]
R4301 47[D] [1608]
U6501 B3RAB0000039
INFRARED RECEIVER UNIT
REMOCON ONLY
R6501 56 [1608]
C6501 10/6.3V [Y]
C6502 0.1 [1608]
R6502 68K [1608]
R6503 100K [1608]
37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
R6505 2R2M [1608]
D6503 MA3S132D0L [SSMINI]
C6505 PT [1608]
Q6501 2SD10300SL [MINI] (SWITCHING)
Q6502 2SD2216J08 [SSMINI] (SWITCHING)
R6504 10M [1608]
C6503 0.47[KB] [1608]
C6504 0.1[KB] [1608]
D6504 B3GA00000041
IR SENSOR
R6506 330K [1608]
R6507 1800 [1608]
R6508 4700 [1608]
C
B
A
1
2
3

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.


REC AUDIO SIGNAL
Q4801
2SD2216J08
+5V
REGULATOR
R4802
4700
FP6501
TO MAIN P.C.B.
FP6
1 REGA+5V
2 D_GND
3 A_M_OUT_R
4 D_GND
5 A_M_OUT_L
6 D_GND
7 IR_GND
8 LIGHT_ON_H
9 LIGHT_REG
10 LIGHT_REG
11 IRDET
12 IR-REMOCON
R4811
PT
C4801
1[KB]
[1608]
C4802
1[KB]
[1608]
C4804
8200P
R4805
120K
C4805
0.027[KB]
R4806
33K
[KB]
R4803
22K
IC4801
C0ABBB000369
(OP AMP)
C4803
10[KB]
R4804
33K
C4812
22/6.3V
[Y]
R6509
1K
[1608]
C4808
0.027[KB]
R4808
120K
C4809
8200P
33K
3
4
5

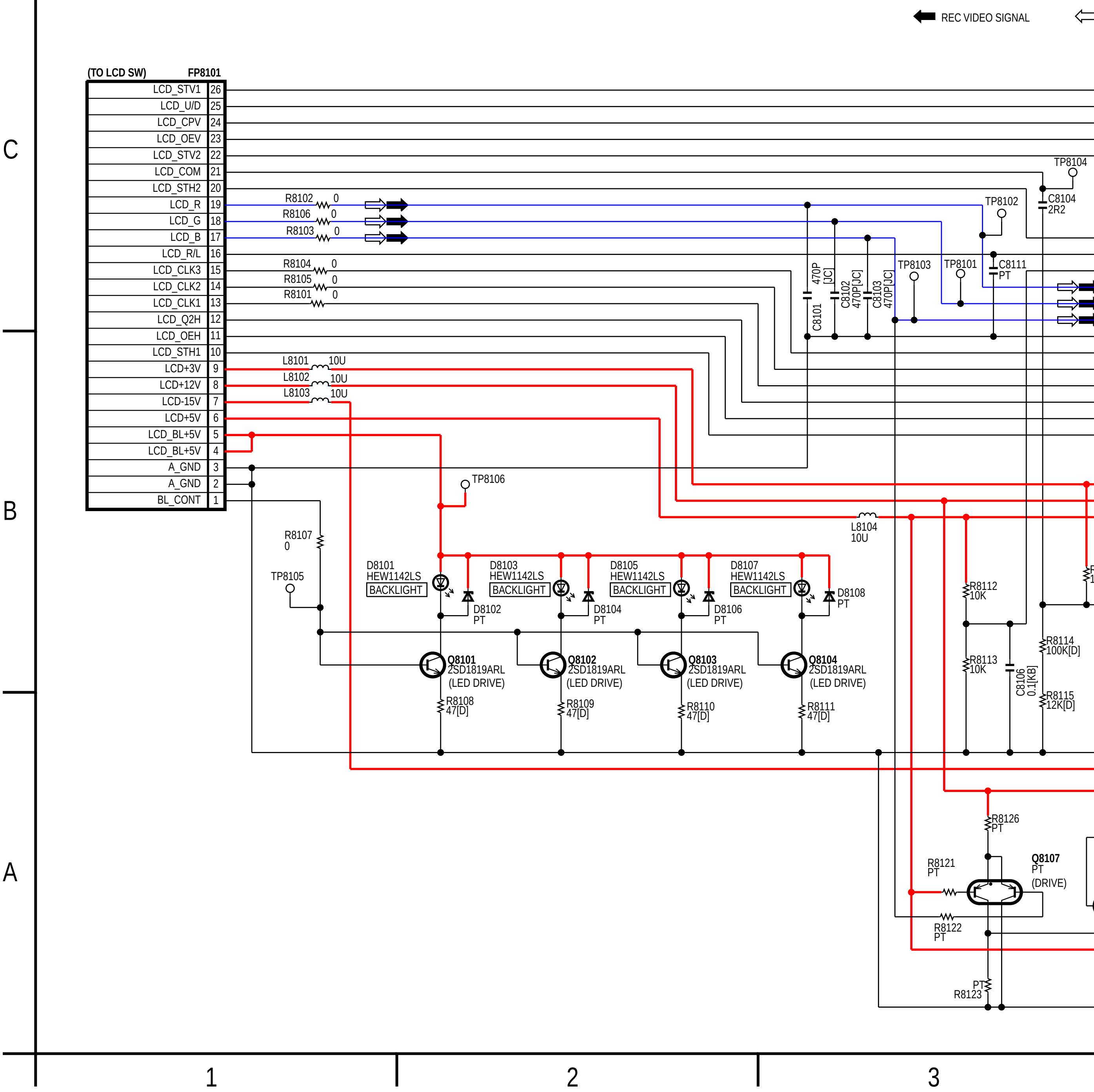
LSJB8332
FRONT SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12.3. LCD BACKLIGHT SCHEMATIC DIAGRAM

LCD BACKLIGHT SCHEMATIC DIAGRAM

NOTE: For placing a purchas
be sure to use the par
Do not use the part nu

NOTE:
ALL INDIVIDUAL PARTS
ON LCD BACKLIGHT P.C
WHEN SERVICING THE
INSTEAD OF INDIVIDUA

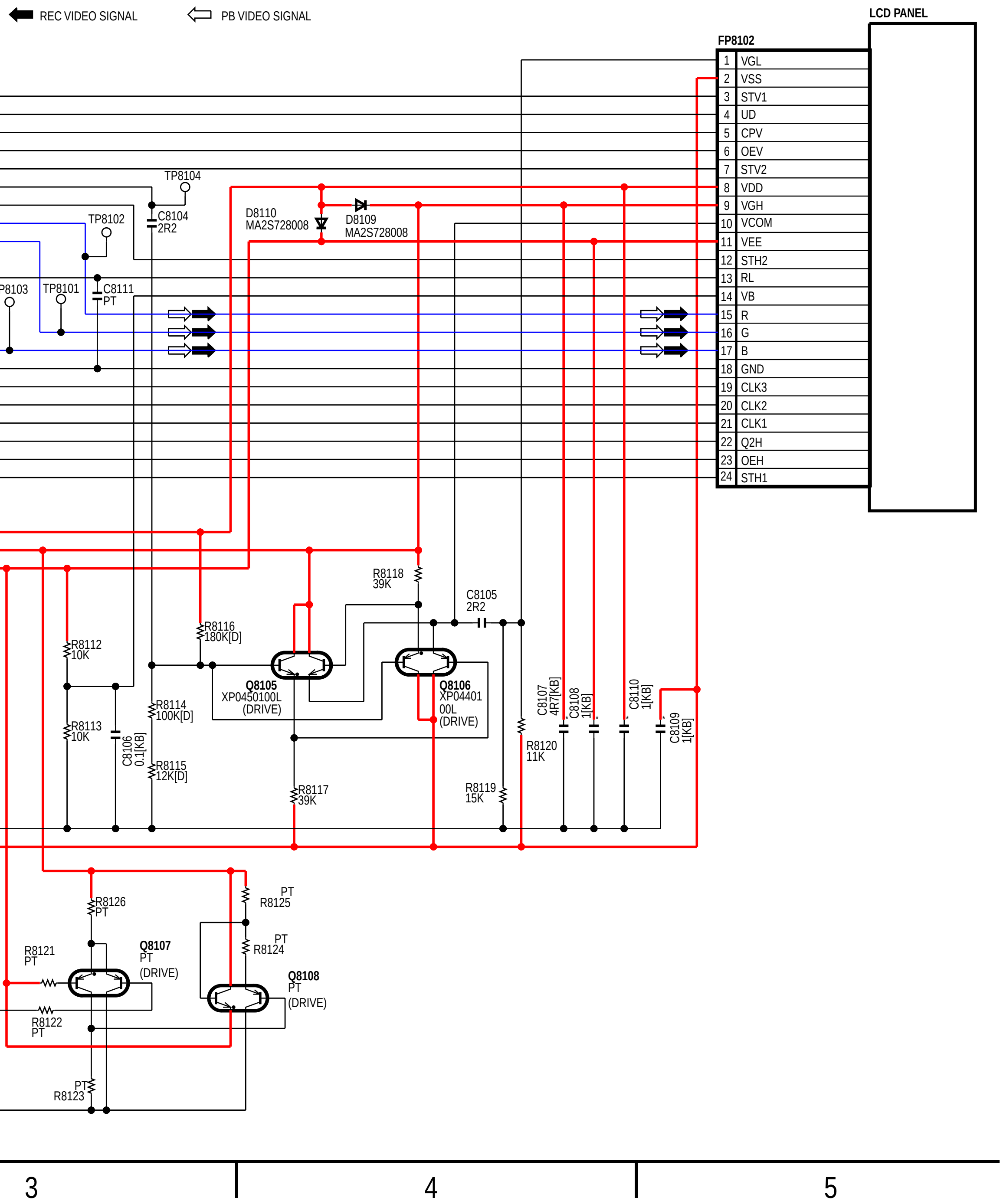

REC VIDEO SIGNAL
(TO LCD SW)
FP8101
LCD_STV1 26
LCD_U/D 25
LCD_CPV 24
LCD_OEV 23
LCD_STV2 22
LCD_COM 21
LCD_STH2 20
LCD_R 19
LCD_G 18
LCD_B 17
LCD_R/L 16
LCD_CLK3 15
LCD_CLK2 14
LCD_CLK1 13
LCD_Q2H 12
LCD_OEH 11
LCD_STH1 10
LCD+3V 9
LCD+12V 8
LCD-15V 7
LCD+5V 6
LCD_BL+5V 5
LCD_BL+5V 4
A_GND 3
A_GND 2
BL_CONT 1
R8102 0
R8106 0
R8103 0
R8104 0
R8105 0
R8101 0
L8101 10U
L8102 10U
L8103 10U
C8101 470P [JC]
C8102 470P[JC]
C8103 470P[JC]
TP8101
TP8102
TP8103
TP8104
C8104 2R2
C8111 PT
TP8105
TP8106
R8107 0
D8101 HEW1142LS BACKLIGHT
D8103 HEW1142LS BACKLIGHT
D8105 HEW1142LS BACKLIGHT
D8107 HEW1142LS BACKLIGHT
D8102 PT
D8104 PT
D8106 PT
D8108 PT
Q8101 2SD1819ARL (LED DRIVE)
Q8102 2SD1819ARL (LED DRIVE)
Q8103 2SD1819ARL (LED DRIVE)
Q8104 2SD1819ARL (LED DRIVE)
R8108 47[D]
R8109 47[D]
R8110 47[D]
R8111 47[D]
L8104 10U
R8112 10K
R8113 10K
C8106 0.1[KB]
R8114 100K[D]
R8115 12K[D]
R8126 PT
R8121 PT
Q8107 PT (DRIVE)
R8122 PT
PT R8123
C
B
A
1
2
3

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
ALL INDIVIDUAL PARTS EXCEPT D8101, D8103, D8105, AND D8107
ON LCD BACKLIGHT P.C.B. ARE SUPPLIED AS REPLACEMENT PARTS.
WHEN SERVICING THESE PARTS, REPLACE LCD BACKLIGHT P.C.B.
INSTEAD OF INDIVIDUAL PARTS.



REC VIDEO SIGNAL
PB VIDEO SIGNAL
LCD PANEL
FP8102
1 VGL
2 VSS
3 STV1
4 UD
5 CPV
6 OEV
7 STV2
8 VDD
9 VGH
10 VCOM
11 VEE
12 STH2
13 RL
14 VB
15 R
16 G
17 B
18 GND
19 CLK3
20 CLK2
21 CLK1
22 Q2H
23 OEH
24 STH1
TP8104
TP8102
C8104 2R2
D8110 MA2S728008
D8109 MA2S728008
P8103
TP8101
C8111 PT
R8118 39K
C8105 2R2
R8116 180K[D]
R8112 10K
R8113 10K
C8106 0.1[KB]
R8114 100K[D]
R8115 12K[D]
Q8105 XP0450100L (DRIVE)
Q8106 XP04401 00L (DRIVE)
R8117 39K
R8119 15K
R8120 11K
C8107 4R7[KB]
C8108 1[KB]
C8110 1[KB]
C8109 1[KB]
R8126 PT
PT R8125
PT R8124
R8121 PT
R8122 PT
Q8107 PT (DRIVE)
Q8108 PT (DRIVE)
PT R8123
3
4
5

LSJB8334
LCD BACKLIGHT SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12.4. EVF BACKLIGHT / CASSETTE COVER SCHEMATIC DIAGRAMS

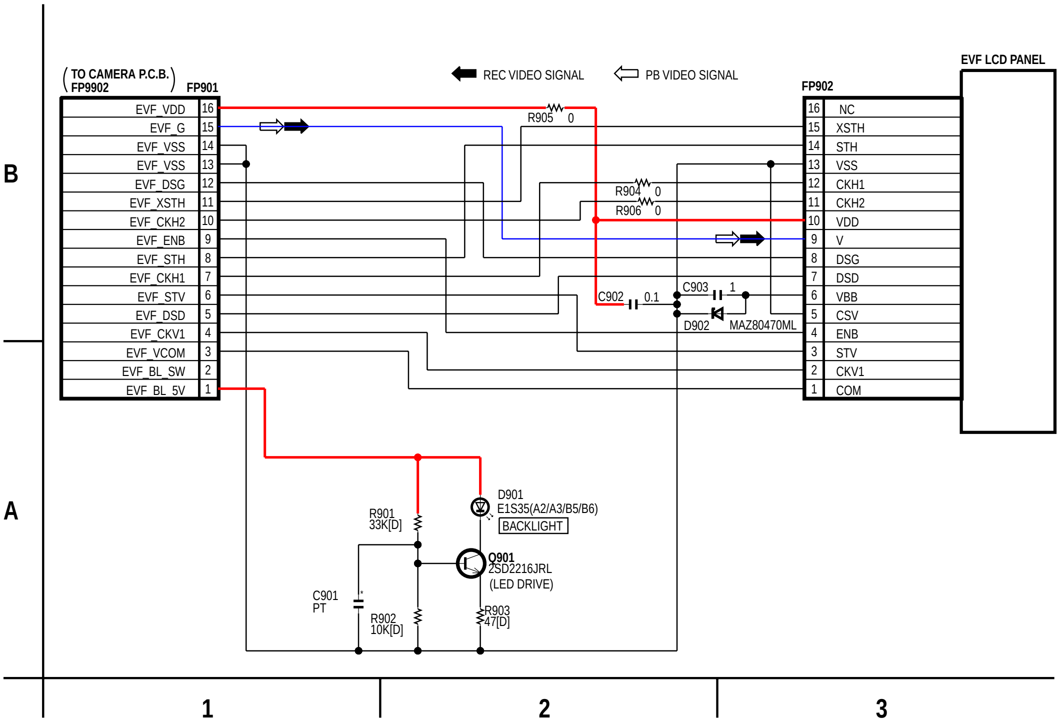
NOTE: For placing a purchas
be sure to use the par
Do not use the part nu

EVF BACKLIGHT SCHEMATIC DIAGRAM

NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS47EE/GC

“FOR REFERENCE ONLY”

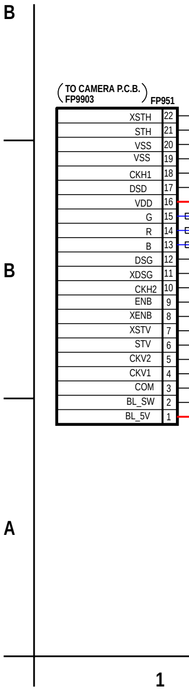
NOTE:
EVF BACKLIGHT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



B
A
TO CAMERA P.C.B. FP9902
FP901
EVF_VDD 16
EVF_G 15
EVF_VSS 14
EVF_VSS 13
EVF_DSG 12
EVF_XSTH 11
EVF_CKH2 10
EVF_ENB 9
EVF_STH 8
EVF_CKH1 7
EVF_STV 6
EVF_DSD 5
EVF_CKV1 4
EVF_VCOM 3
EVF_BL_SW 2
EVF_BL_5V 1
REC VIDEO SIGNAL
PB VIDEO SIGNAL
R905 0
R904 0
R906 0
C902 0.1
C903 1
D902 MAZ80470ML
FP902
EVF LCD PANEL
16 NC
15 XSTH
14 STH
13 VSS
12 CKH1
11 CKH2
10 VDD
9 V
8 DSG
7 DSD
6 VBB
5 CSV
4 ENB
3 STV
2 CKV1
1 COM
D901
E1S35(A2/A3/B5/B6)
BACKLIGHT
R901 33K[D]
Q901
2SD2216JRL
(LED DRIVE)
C901 PT
R902 10K[D]
R903 47[D]
1
2
3

EVF BACKLIG

“FOR REFER

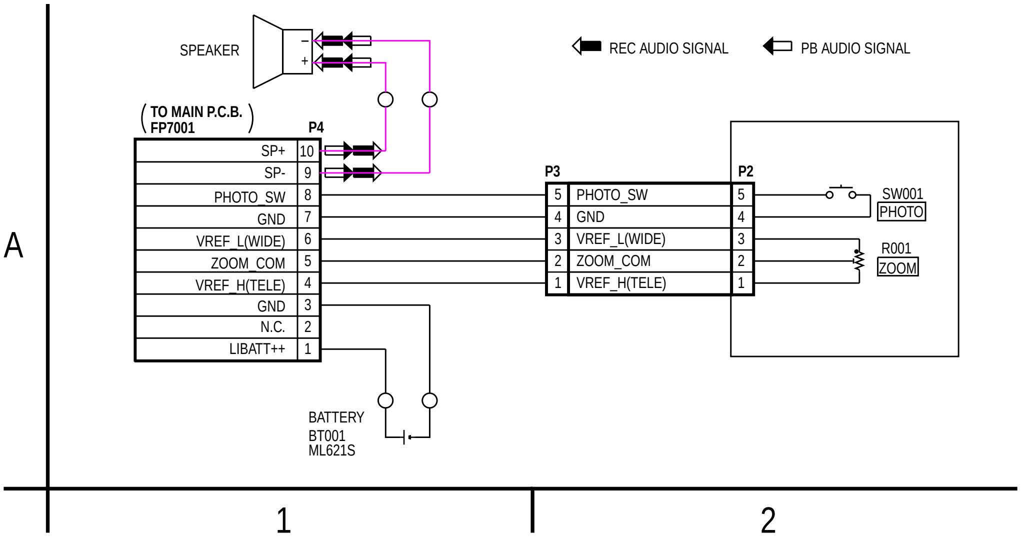


B
B
A
TO CAMERA P.C.B. FP9903
FP951
XSTH 22
STH 21
VSS 20
VSS 19
CKH1 18
DSD 17
VDD 16
G 15
R 14
B 13
DSG 12
XDSG 11
CKH2 10
ENB 9
XENB 8
XSTV 7
STV 6
CKV2 5
CKV1 4
COM 3
BL_SW 2
BL_5V 1
1

CASSETTE COVER SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
CASSETTE COVER UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



SPEAKER
REC AUDIO SIGNAL
PB AUDIO SIGNAL
TO MAIN P.C.B. FP7001
P4
SP+ 10
SP- 9
PHOTO_SW 8
GND 7
VREF_L(WIDE) 6
ZOOM_COM 5
VREF_H(TELE) 4
GND 3
N.C. 2
LIBATT++ 1
P3
P2
5 PHOTO_SW 5
4 GND 4
3 VREF_L(WIDE) 3
2 ZOOM_COM 2
1 VREF_H(TELE) 1
SW001
PHOTO
R001
ZOOM
BATTERY
BT001
ML621S
A
1
2

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

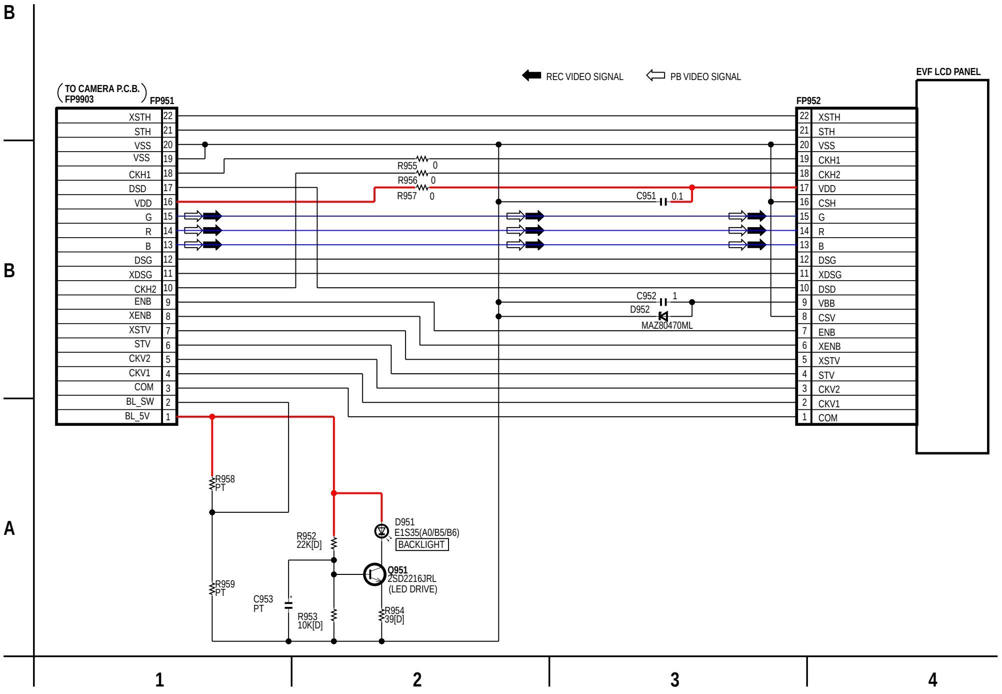
NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

EVF BACKLIGHT SCHEMATIC DIAGRAM NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK

“FOR REFERENCE ONLY”

NOTE:
EVF BACKLIGHT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
B
A
1
2
3
4
REC VIDEO SIGNAL
PB VIDEO SIGNAL
EVF LCD PANEL
TO CAMERA P.C.B.
FP9903
FP951
XSTH 22
STH 21
VSS 20
VSS 19
CKH1 18
DSD 17
VDD 16
G 15
R 14
B 13
DSG 12
XDSG 11
CKH2 10
ENB 9
XENB 8
XSTV 7
STV 6
CKV2 5
CKV1 4
COM 3
BL_SW 2
BL_5V 1
FP952
22 XSTH
21 STH
20 VSS
19 CKH1
18 CKH2
17 VDD
16 CSH
15 G
14 R
13 B
12 DSG
11 XDSG
10 DSD
9 VBB
8 CSV
7 ENB
6 XENB
5 XSTV
4 STV
3 CKV2
2 CKV1
1 COM
R955 0
R956 0
R957 0
C951 0.1
C952 1
D952
MAZ80470ML
R958
PT
R959
PT
R952
22K[D]
D951
E1S35(A0/B5/B6)
BACKLIGHT
Q951
2SD2216JRL
(LED DRIVE)
C953
PT
R953
10K[D]
R954
39[D]

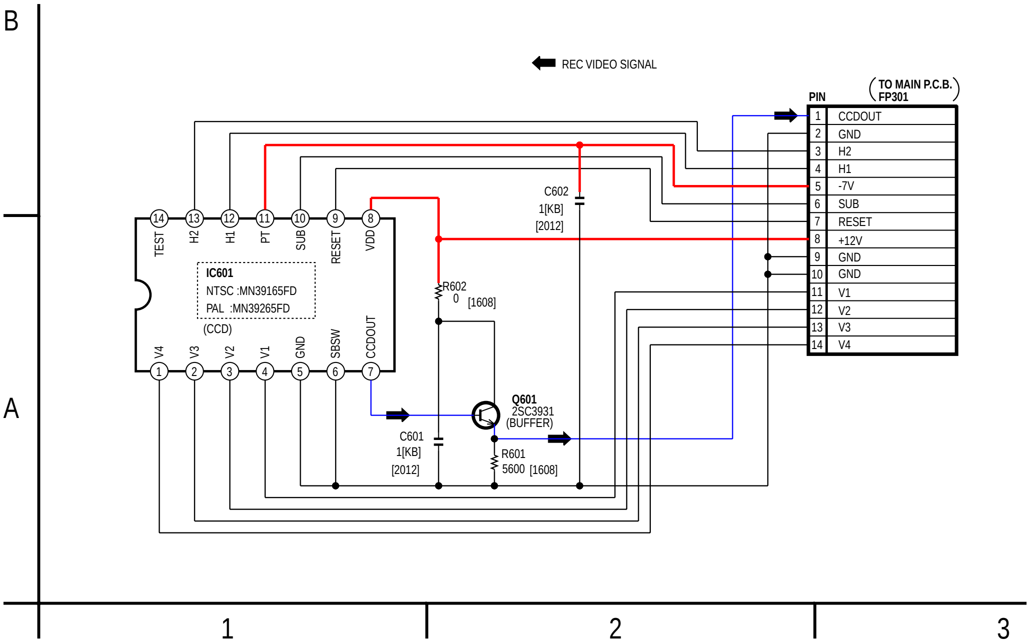
12.5. CCD / REAR / LCD SW / BATTERY CASE SCHEMATIC DIAGRAMS

NOTE: For placing a purchas
be sure to use the par
Do not use the part nu

CCD SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

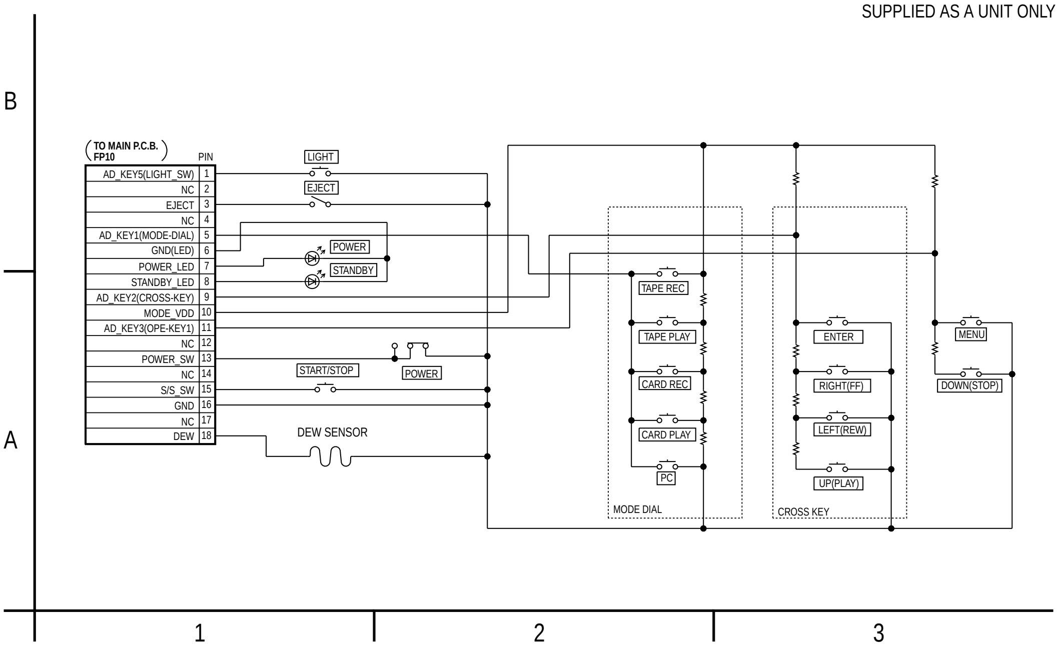
NOTE:
CCD P.C.B. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
A
1
2
3
REC VIDEO SIGNAL
TO MAIN P.C.B.
FP301
PIN
1 CCDOUT
2 GND
3 H2
4 H1
5 -7V
6 SUB
7 RESET
8 +12V
9 GND
10 GND
11 V1
12 V2
13 V3
14 V4
14 TEST
13 H2
12 H1
11 PT
10 SUB
9 RESET
8 VDD
1 V4
2 V3
3 V2
4 V1
5 GND
6 SBSW
7 CCDOUT
IC601
NTSC :MN39165FD
PAL :MN39265FD
(CCD)
C602
1[KB]
[2012]
R602
0 [1608]
Q601
2SC3931
(BUFFER)
C601
1[KB]
[2012]
R601
5600 [1608]

REAR SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
REAR UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


B
A
1
2
3
TO MAIN P.C.B.
FP10
PIN
AD_KEY5(LIGHT_SW) 1
NC 2
EJECT 3
NC 4
AD_KEY1(MODE-DIAL) 5
GND(LED) 6
POWER_LED 7
STANDBY_LED 8
AD_KEY2(CROSS-KEY) 9
MODE_VDD 10
AD_KEY3(OPE-KEY1) 11
NC 12
POWER_SW 13
NC 14
S/S_SW 15
GND 16
NC 17
DEW 18
LIGHT
EJECT
POWER
STANDBY
START/STOP
POWER
DEW SENSOR
TAPE REC
TAPE PLAY
CARD REC
CARD PLAY
PC
MODE DIAL
ENTER
RIGHT(FF)
LEFT(REW)
UP(PLAY)
CROSS KEY
MENU
DOWN(STOP)

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

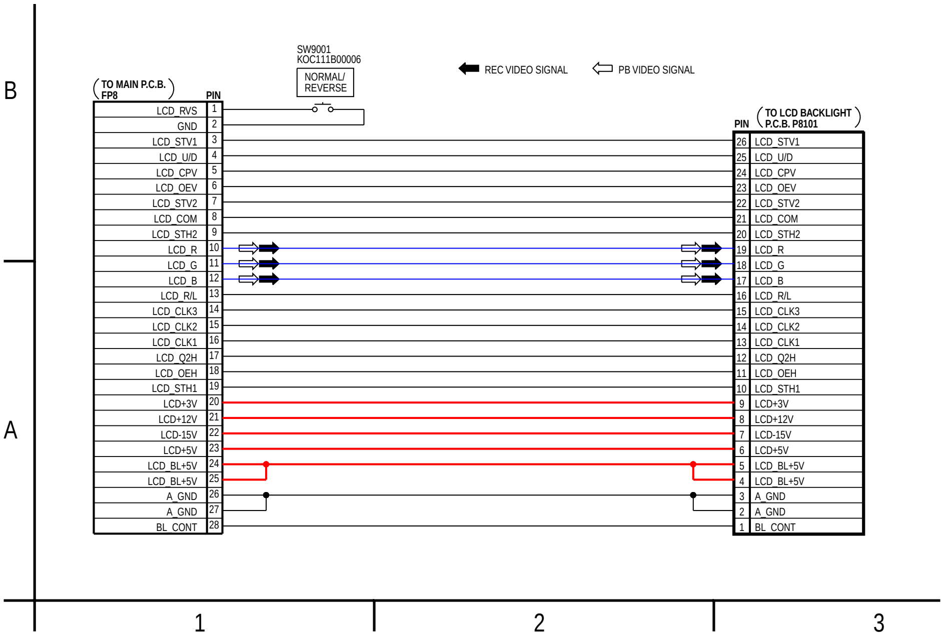
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

ENT.

LCD SW SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
LCD SW IS NOT SERVICEABLE AND IS
SUPPLIED AS A R SHAFT CASE UNIT ONLY FOR REPLACEMENT.

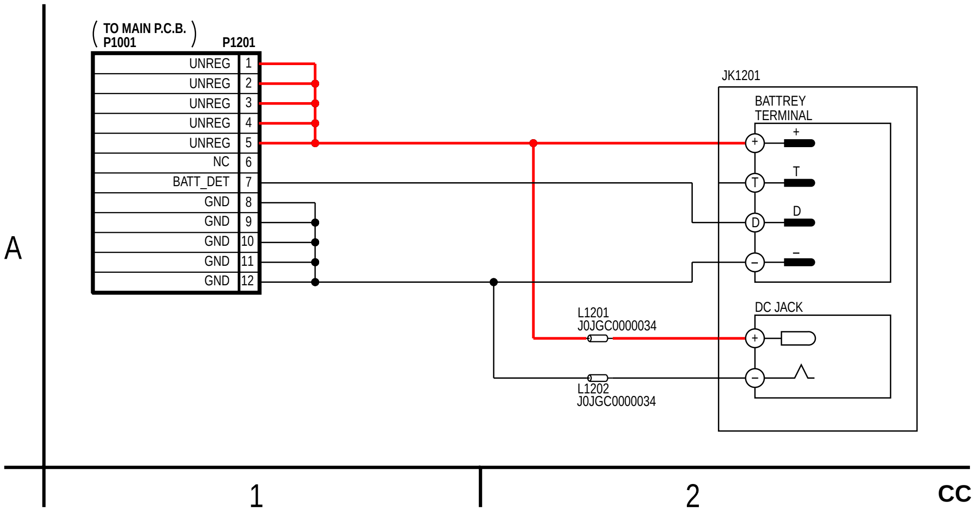

B
A
1
2
3
SW9001
KOC111B00006
NORMAL/
REVERSE
REC VIDEO SIGNAL
PB VIDEO SIGNAL
TO MAIN P.C.B.
FP8
PIN
LCD_RVS 1
GND 2
LCD_STV1 3
LCD_U/D 4
LCD_CPV 5
LCD_OEV 6
LCD_STV2 7
LCD_COM 8
LCD_STH2 9
LCD_R 10
LCD_G 11
LCD_B 12
LCD_R/L 13
LCD_CLK3 14
LCD_CLK2 15
LCD_CLK1 16
LCD_Q2H 17
LCD_OEH 18
LCD_STH1 19
LCD+3V 20
LCD+12V 21
LCD-15V 22
LCD+5V 23
LCD_BL+5V 24
LCD_BL+5V 25
A_GND 26
A_GND 27
BL_CONT 28
TO LCD BACKLIGHT
P.C.B. P8101
PIN
26 LCD_STV1
25 LCD_U/D
24 LCD_CPV
23 LCD_OEV
22 LCD_STV2
21 LCD_COM
20 LCD_STH2
19 LCD_R
18 LCD_G
17 LCD_B
16 LCD_R/L
15 LCD_CLK3
14 LCD_CLK2
13 LCD_CLK1
12 LCD_Q2H
11 LCD_OEH
10 LCD_STH1
9 LCD+3V
8 LCD+12V
7 LCD-15V
6 LCD+5V
5 LCD_BL+5V
4 LCD_BL+5V
3 A_GND
2 A_GND
1 BL_CONT

BATTERY CASE SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
BATTERY CASE UNIT IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

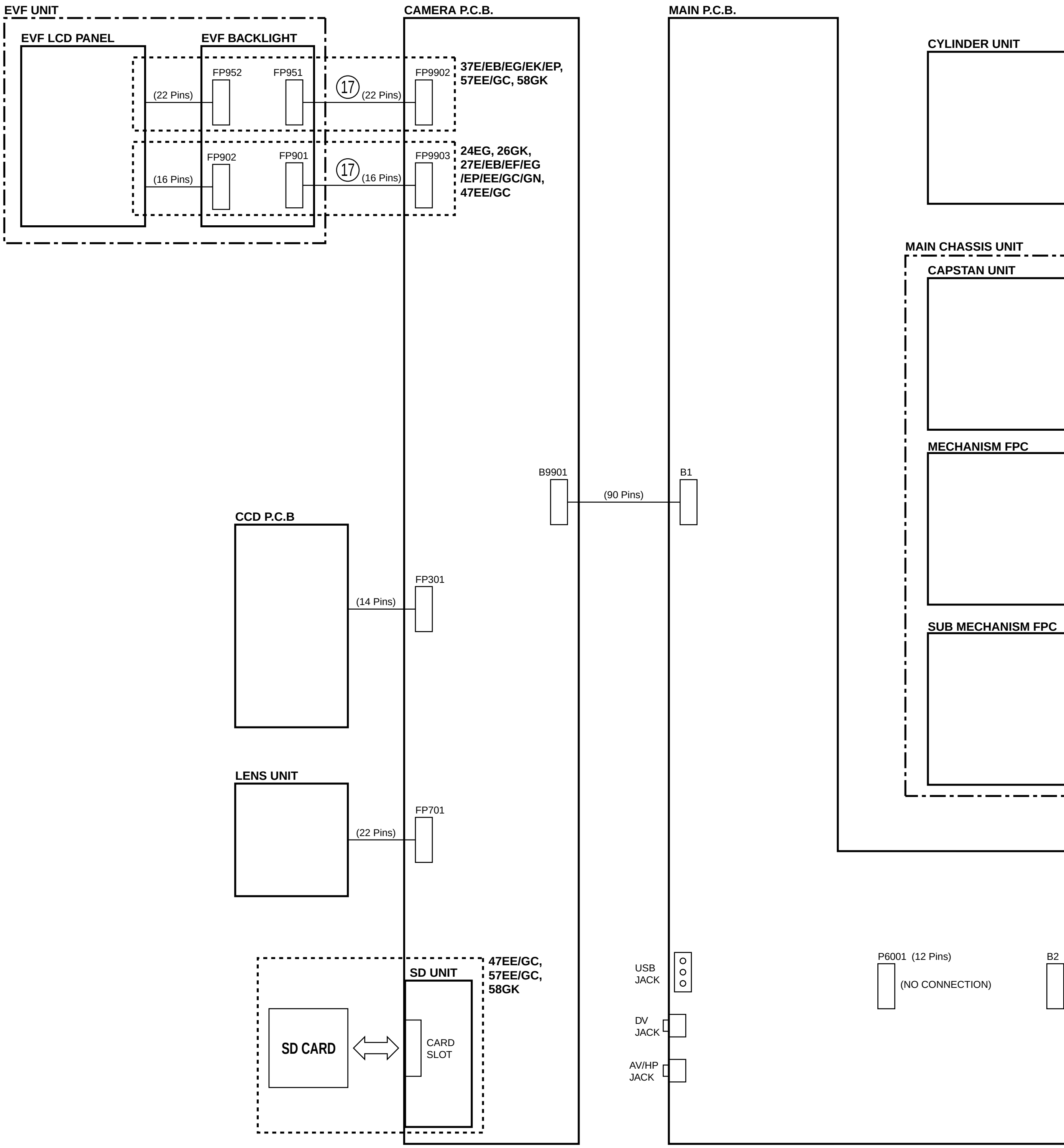
ENT.


A
1
2
TO MAIN P.C.B.
P1001
P1201
UNREG 1
UNREG 2
UNREG 3
UNREG 4
UNREG 5
NC 6
BATT_DET 7
GND 8
GND 9
GND 10
GND 11
GND 12
JK1201
BATTREY
TERMINAL
+
T
D
–
DC JACK
+
–
L1201
J0JGC0000034
L1202
J0JGC0000034

12.6. INTERCONNECTION SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM

NOTE: For placing a purchas
be sure to use the par
Do not use the part nu

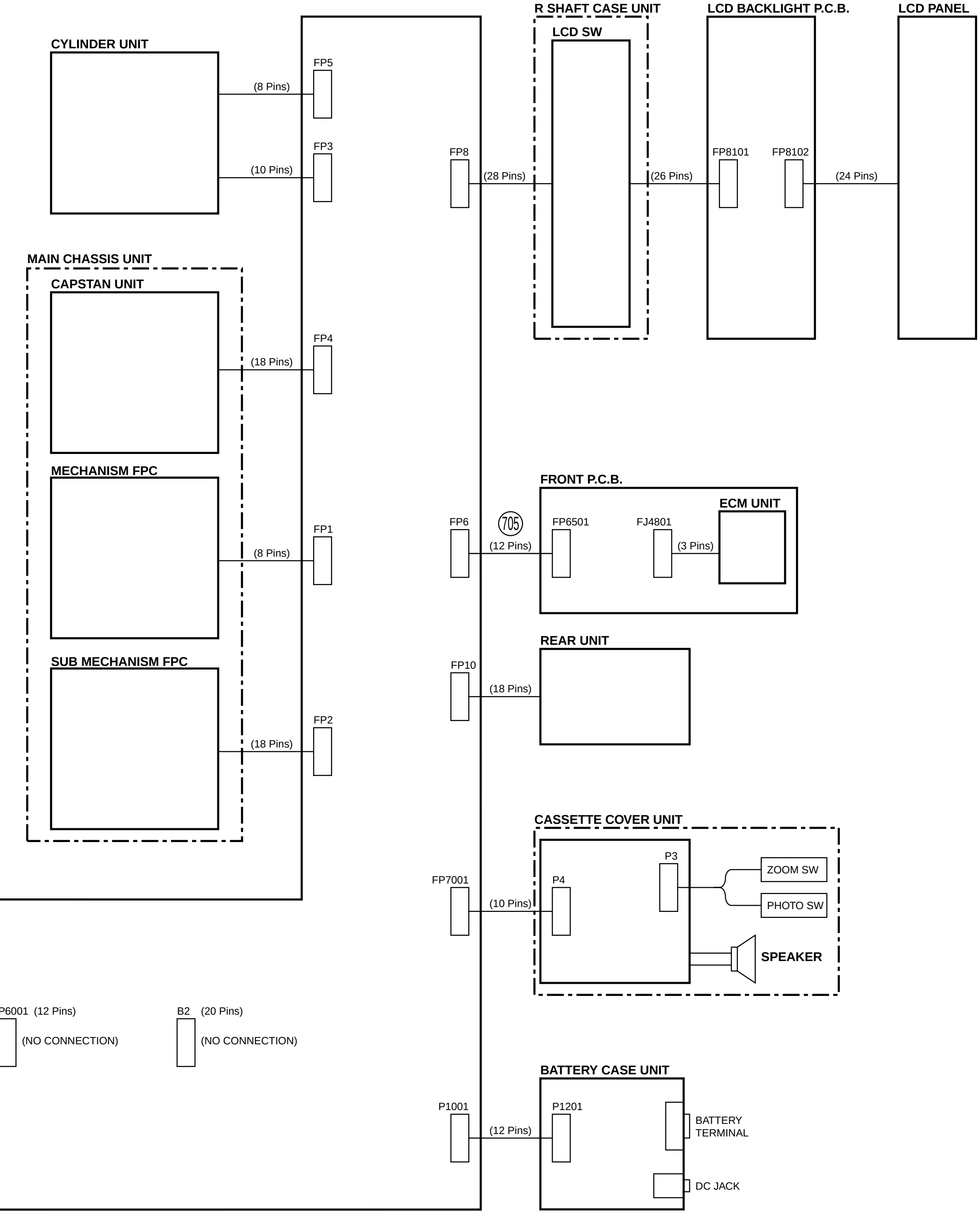


EVF UNIT
EVF LCD PANEL
EVF BACKLIGHT
FP952
FP951
FP902
FP901
(22 Pins)
(16 Pins)
⑰
(22 Pins)
⑰
(16 Pins)
CAMERA P.C.B.
FP9902
37E/EB/EG/EK/EP, 57EE/GC, 58GK
FP9903
24EG, 26GK, 27E/EB/EF/EG /EP/EE/GC/GN, 47EE/GC
B9901
(90 Pins)
B1
MAIN P.C.B.
CYLINDER UNIT
MAIN CHASSIS UNIT
CAPSTAN UNIT
MECHANISM FPC
SUB MECHANISM FPC
CCD P.C.B
(14 Pins)
FP301
LENS UNIT
(22 Pins)
FP701
SD UNIT
47EE/GC, 57EE/GC, 58GK
SD CARD
CARD SLOT
USB JACK
DV JACK
AV/HP JACK
P6001 (12 Pins)
(NO CONNECTION)
B2

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.


R SHAFT CASE UNIT
LCD SW
LCD BACKLIGHT P.C.B.
LCD PANEL
CYLINDER UNIT
FP5
(8 Pins)
FP3
(10 Pins)
FP8
(28 Pins)
(26 Pins)
FP8101
FP8102
(24 Pins)
MAIN CHASSIS UNIT
CAPSTAN UNIT
FP4
(18 Pins)
MECHANISM FPC
FP1
(8 Pins)
SUB MECHANISM FPC
FP2
(18 Pins)
FRONT P.C.B.
ECM UNIT
FP6
705
(12 Pins)
FP6501
FJ4801
(3 Pins)
REAR UNIT
FP10
(18 Pins)
CASSETTE COVER UNIT
P3
P4
FP7001
(10 Pins)
ZOOM SW
PHOTO SW
SPEAKER
P6001 (12 Pins)
(NO CONNECTION)
B2 (20 Pins)
(NO CONNECTION)
BATTERY CASE UNIT
P1001
P1201
(12 Pins)
BATTERY TERMINAL
DC JACK

INTERCONNECTION SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

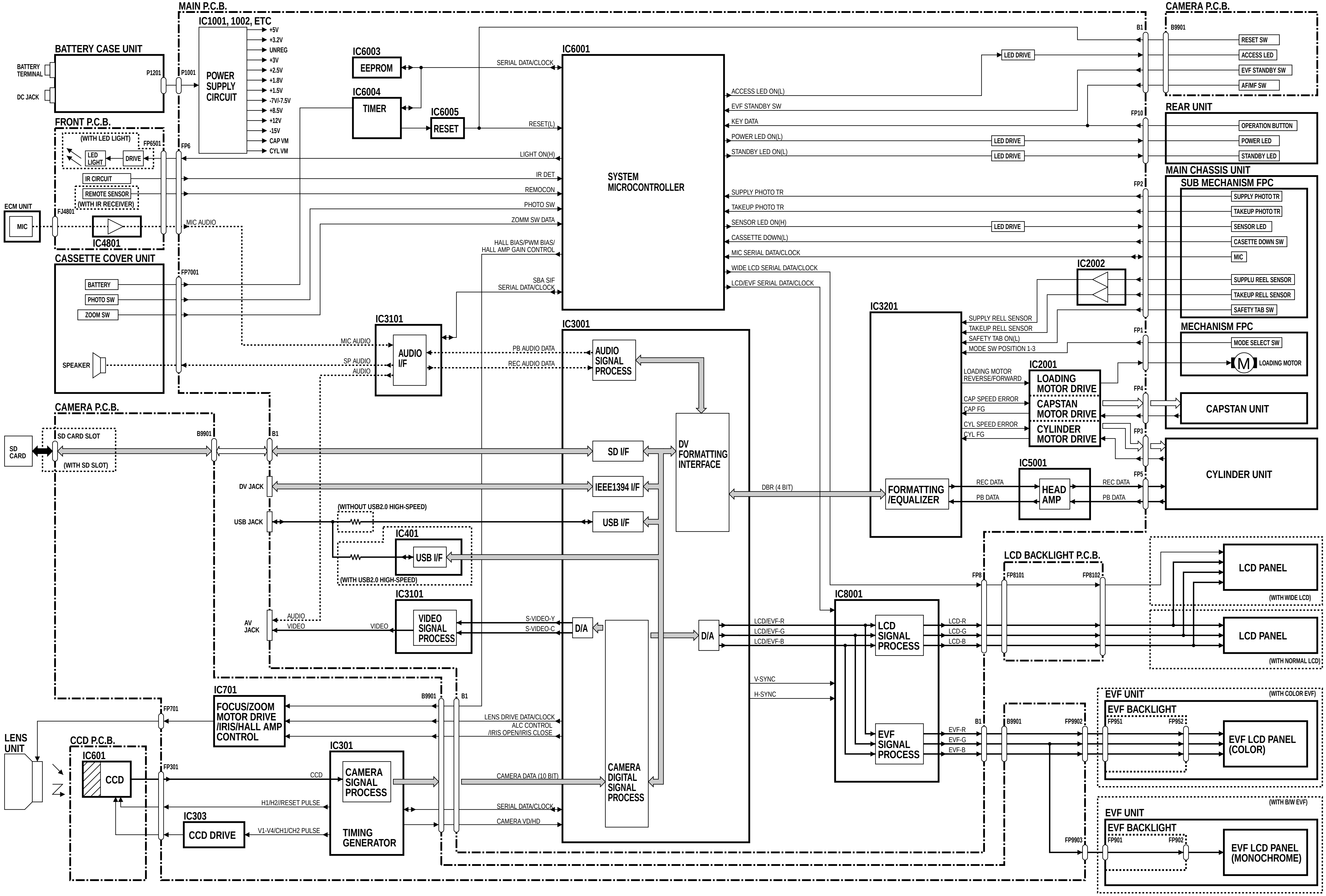
LCD BACKLIGHT P.C.B.

MODE / PIN NO.	CAMERA
Q8101	
E	0.7
C	1.8
B	1.5
Q8102	
E	0.7
C	1.8
B	1.5
Q8103	
E	0.7
C	1.8
B	1.5
Q8104	
E	0.7
C	1.8
B	1.5
Q8105	
1	0.7
2	1.2
3	12.0
4	1.2
5	1.7
6	12.0
Q8106	
1	1.7
2	1.3
3	-14.7
4	1.2
5	0.7
6	-14.7
TP8101	2.6
TP8102	2.6
TP8103	2.6
TP8104	1.5
TP8105	1.5
TP8106	5.0

VOLTAGE CHART

NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

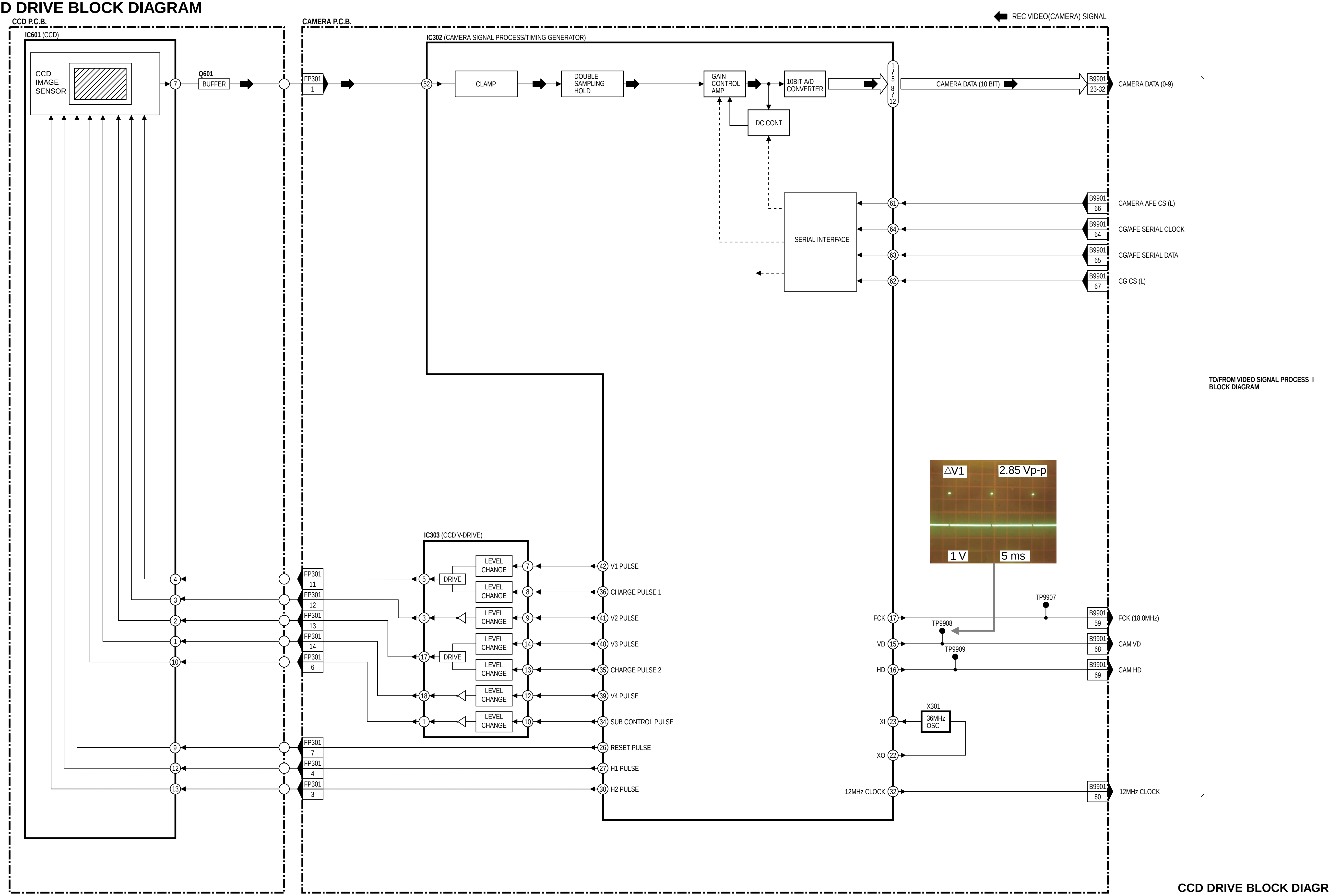
OVERALL BLOCK DIAGRAM



MAIN P.C.B.
IC1001, 1002, ETC
POWER SUPPLY CIRCUIT
+5V
+3.2V
UNREG
+3V
+2.5V
+1.8V
+1.5V
-7V/-7.5V
+8.5V
+12V
-15V
CAP VM
CYL VM
BATTERY CASE UNIT
BATTERY TERMINAL
DC JACK
P1201
P1001
IC6003
EEPROM
IC6004
TIMER
IC6005
RESET
IC6001
SYSTEM MICROCONTROLLER
SERIAL DATA/CLOCK
RESET(L)
LIGHT ON(H)
IR DET
REMOCON
PHOTO SW
ZOMM SW DATA
HALL BIAS/PWM BIAS/
HALL AMP GAIN CONTROL
SBA SIF
SERIAL DATA/CLOCK
FRONT P.C.B.
(WITH LED LIGHT)
LED LIGHT
DRIVE
FP6501
FP6
IR CIRCUIT
REMOTE SENSOR
(WITH IR RECEIVER)
ECM UNIT
MIC
FJ4801
IC4801
MIC AUDIO
CASSETTE COVER UNIT
FP7001
BATTERY
PHOTO SW
ZOOM SW
SPEAKER
IC3101
AUDIO I/F
MIC AUDIO
SP AUDIO
AUDIO
PB AUDIO DATA
REC AUDIO DATA
IC3001
AUDIO SIGNAL PROCESS
DV FORMATTING INTERFACE
SD I/F
IEEE1394 I/F
USB I/F
CAMERA P.C.B.
SD CARD
SD CARD SLOT
(WITH SD SLOT)
B9901
B1
DV JACK
USB JACK
(WITHOUT USB2.0 HIGH-SPEED)
IC401
USB I/F
(WITH USB2.0 HIGH-SPEED)
IC3101
VIDEO SIGNAL PROCESS
AV JACK
AUDIO
VIDEO
VIDEO
S-VIDEO-Y
S-VIDEO-C
D/A
D/A
CAMERA DIGITAL SIGNAL PROCESS
IC701
FOCUS/ZOOM MOTOR DRIVE /IRIS/HALL AMP CONTROL
B9901
B1
FP701
LENS UNIT
CCD P.C.B.
IC601
CCD
FP301
IC301
CAMERA SIGNAL PROCESS
TIMING GENERATOR
CCD
H1/H2//RESET PULSE
IC303
CCD DRIVE
V1-V4/CH1/CH2 PULSE
LENS DRIVE DATA/CLOCK
ALC CONTROL
/IRIS OPEN/IRIS CLOSE
CAMERA DATA (10 BIT)
SERIAL DATA/CLOCK
CAMERA VD/HD
ACCESS LED ON(L)
EVF STANDBY SW
KEY DATA
POWER LED ON(L)
STANDBY LED ON(L)
SUPPLY PHOTO TR
TAKEUP PHOTO TR
SENSOR LED ON(H)
CASSETTE DOWN(L)
MIC SERIAL DATA/CLOCK
WIDE LCD SERIAL DATA/CLOCK
LCD/EVF SERIAL DATA/CLOCK
LED DRIVE
LED DRIVE
LED DRIVE
LED DRIVE
CAMERA P.C.B.
B1
B9901
RESET SW
ACCESS LED
EVF STANDBY SW
AF/MF SW
REAR UNIT
FP10
OPERATION BUTTON
POWER LED
STANDBY LED
MAIN CHASSIS UNIT
FP2
SUB MECHANISM FPC
SUPPLY PHOTO TR
TAKEUP PHOTO TR
SENSOR LED
CASETTE DOWN SW
MIC
SUPPLU REEL SENSOR
TAKEUP RELL SENSOR
SAFETY TAB SW
IC2002
IC3201
SUPPLY RELL SENSOR
TAKEUP RELL SENSOR
SAFETY TAB ON(L)
MODE SW POSITION 1-3
FP1
MECHANISM FPC
MODE SELECT SW
M
LOADING MOTOR
LOADING MOTOR REVERSE/FORWARD
IC2001
LOADING MOTOR DRIVE
CAPSTAN MOTOR DRIVE
CYLINDER MOTOR DRIVE
CAP SPEED ERROR
CAP FG
CYL SPEED ERROR
CYL FG
FP4
CAPSTAN UNIT
FP3
CYLINDER UNIT
FP5
IC5001
HEAD AMP
REC DATA
PB DATA
REC DATA
PB DATA
FORMATTING /EQUALIZER
DBR (4 BIT)
LCD BACKLIGHT P.C.B.
FP8
FP8101
FP8102
LCD PANEL
(WITH WIDE LCD)
LCD PANEL
(WITH NORMAL LCD)
IC8001
LCD SIGNAL PROCESS
EVF SIGNAL PROCESS
LCD/EVF-R
LCD/EVF-G
LCD/EVF-B
LCD-R
LCD-G
LCD-B
V-SYNC
H-SYNC
EVF-R
EVF-G
EVF-B
B1
B9901
FP9902
FP9903
EVF UNIT
(WITH COLOR EVF)
EVF BACKLIGHT
FP951
FP952
EVF LCD PANEL (COLOR)
(WITH B/W EVF)
EVF UNIT
EVF BACKLIGHT
FP901
FP902
EVF LCD PANEL (MONOCHROME)

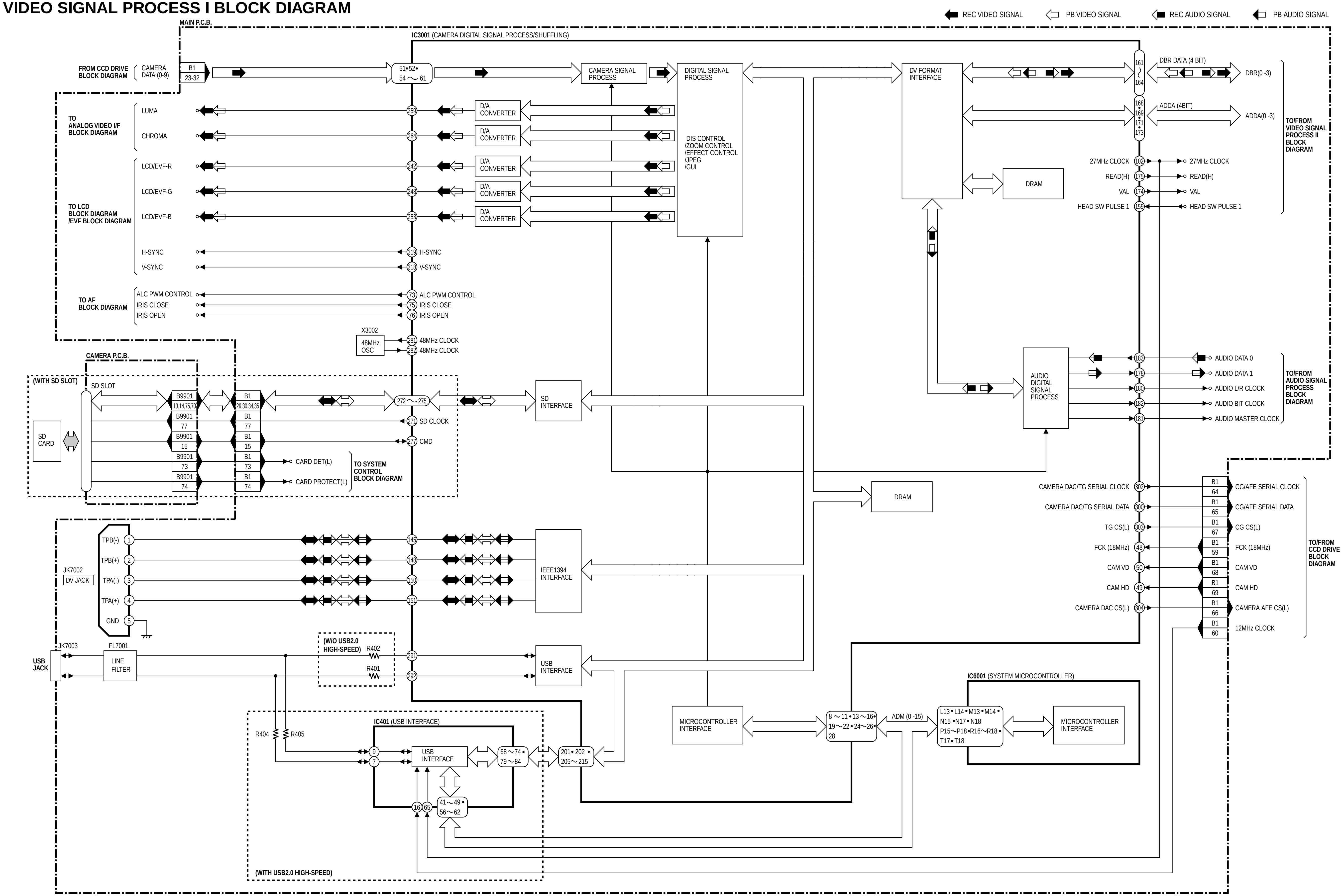
OVERALL BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

CCD DRIVE BLOCK DIAGRAM


REC VIDEO(CAMERA) SIGNAL
CCD P.C.B.
CAMERA P.C.B.
IC601 (CCD)
CCD IMAGE SENSOR
Q601
BUFFER
FP301
IC302 (CAMERA SIGNAL PROCESS/TIMING GENERATOR)
CLAMP
DOUBLE SAMPLING HOLD
GAIN CONTROL AMP
10BIT A/D CONVERTER
DC CONT
SERIAL INTERFACE
CAMERA DATA (10 BIT)
B9901
CAMERA DATA (0-9)
CAMERA AFE CS (L)
CG/AFE SERIAL CLOCK
CG/AFE SERIAL DATA
CG CS (L)
TO/FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
IC303 (CCD V-DRIVE)
LEVEL CHANGE
DRIVE
V1 PULSE
CHARGE PULSE 1
V2 PULSE
V3 PULSE
CHARGE PULSE 2
V4 PULSE
SUB CONTROL PULSE
RESET PULSE
H1 PULSE
H2 PULSE
△V1
2.85 Vp-p
1 V
5 ms
TP9907
TP9908
TP9909
FCK
VD
HD
XI
XO
12MHz CLOCK
X301
36MHz OSC
FCK (18.0MHz)
CAM VD
CAM HD
12MHz CLOCK

CCD DRIVE BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

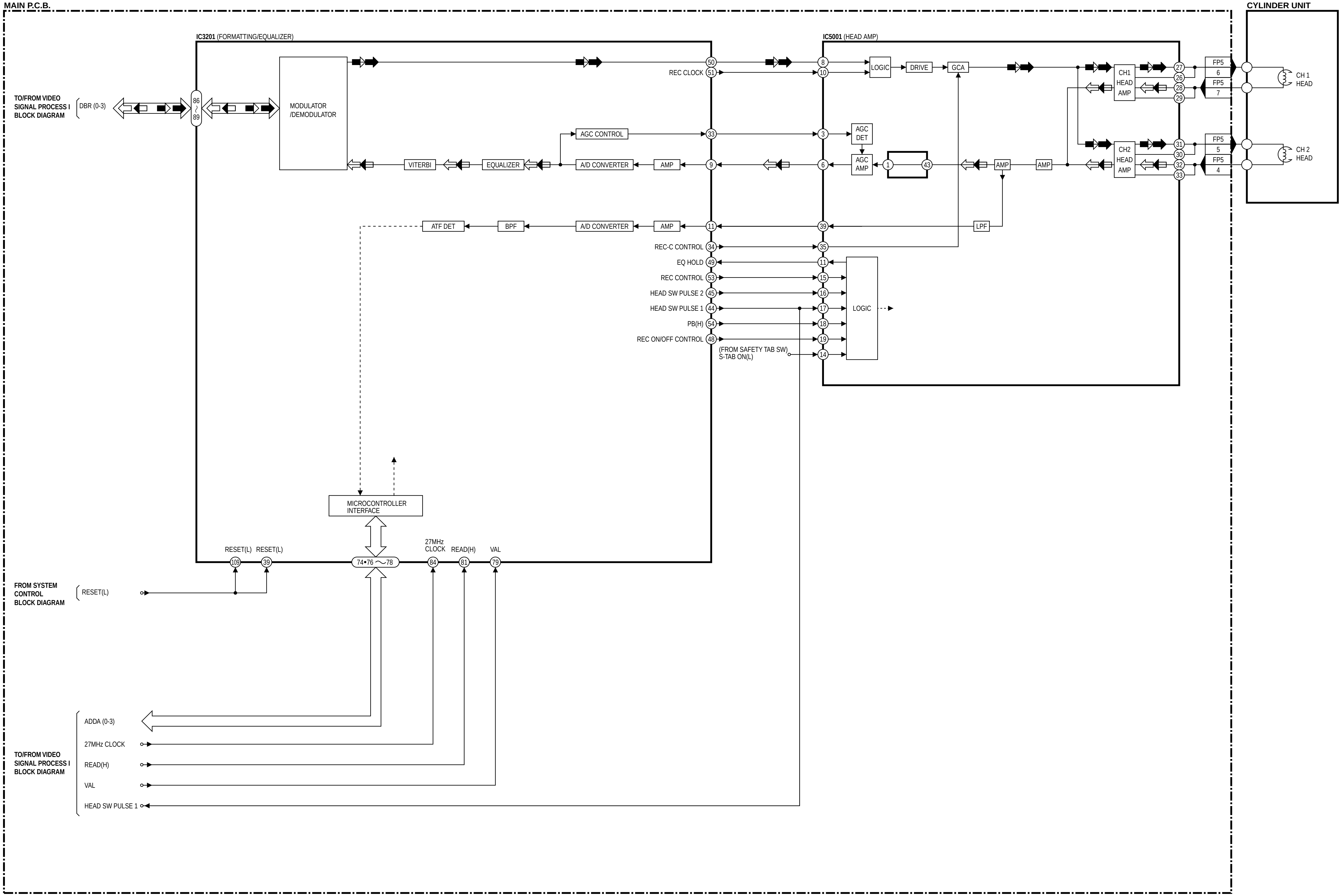
VIDEO SIGNAL PROCESS I BLOCK DIAGRAM


REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
MAIN P.C.B.
IC3001 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING)
FROM CCD DRIVE BLOCK DIAGRAM
CAMERA DATA (0-9)
B1
23-32
51•52•
54～61
CAMERA SIGNAL PROCESS
DIGITAL SIGNAL PROCESS
DIS CONTROL
/ZOOM CONTROL
/EFFECT CONTROL
/JPEG
/GUI
DV FORMAT INTERFACE
161
164
DBR DATA (4 BIT)
DBR(0 -3)
168
169
171
173
ADDA (4BIT)
ADDA(0 -3)
TO/FROM VIDEO SIGNAL PROCESS II BLOCK DIAGRAM
27MHz CLOCK
102
READ(H)
175
VAL
174
HEAD SW PULSE 1
159
DRAM
TO ANALOG VIDEO I/F BLOCK DIAGRAM
LUMA
259
CHROMA
264
D/A CONVERTER
TO LCD BLOCK DIAGRAM /EVF BLOCK DIAGRAM
LCD/EVF-R
242
LCD/EVF-G
248
LCD/EVF-B
253
H-SYNC
319
V-SYNC
318
TO AF BLOCK DIAGRAM
ALC PWM CONTROL
73
IRIS CLOSE
75
IRIS OPEN
76
X3002
48MHz OSC
281
282
48MHz CLOCK
AUDIO DIGITAL SIGNAL PROCESS
AUDIO DATA 0
183
AUDIO DATA 1
178
AUDIO L/R CLOCK
180
AUDIO BIT CLOCK
182
AUDIO MASTER CLOCK
181
TO/FROM AUDIO SIGNAL PROCESS BLOCK DIAGRAM
CAMERA P.C.B.
(WITH SD SLOT)
SD SLOT
SD CARD
B9901
13,14,75,70
77
15
73
74
B1
29,30,34,35
272～275
SD INTERFACE
SD CLOCK
271
CMD
277
CARD DET(L)
CARD PROTECT(L)
TO SYSTEM CONTROL BLOCK DIAGRAM
DRAM
CAMERA DAC/TG SERIAL CLOCK
302
CAMERA DAC/TG SERIAL DATA
300
TG CS(L)
303
FCK (18MHz)
48
CAM VD
50
CAM HD
49
CAMERA DAC CS(L)
304
B1
64
65
67
59
68
69
66
60
CG/AFE SERIAL CLOCK
CG/AFE SERIAL DATA
CG CS(L)
FCK (18MHz)
CAM VD
CAM HD
CAMERA AFE CS(L)
12MHz CLOCK
TO/FROM CCD DRIVE BLOCK DIAGRAM
JK7002
DV JACK
TPB(-)
1
TPB(+)
2
TPA(-)
3
TPA(+)
4
GND
5
145
148
150
151
IEEE1394 INTERFACE
JK7003
USB JACK
FL7001
LINE FILTER
(W/O USB2.0 HIGH-SPEED)
R402
R401
291
292
USB INTERFACE
IC401 (USB INTERFACE)
R404
R405
9
7
USB INTERFACE
68～74•
79～84
41～49•
56～62
16
65
201• 202 •
205～215
(WITH USB2.0 HIGH-SPEED)
MICROCONTROLLER INTERFACE
8～11•13～16•
19～22•24～26•
28
ADM (0 -15)
IC6001 (SYSTEM MICROCONTROLLER)
L13•L14•M13•M14•
N15•N17•N18
P15～P18•R16～R18•
T17•T18
MICROCONTROLLER INTERFACE

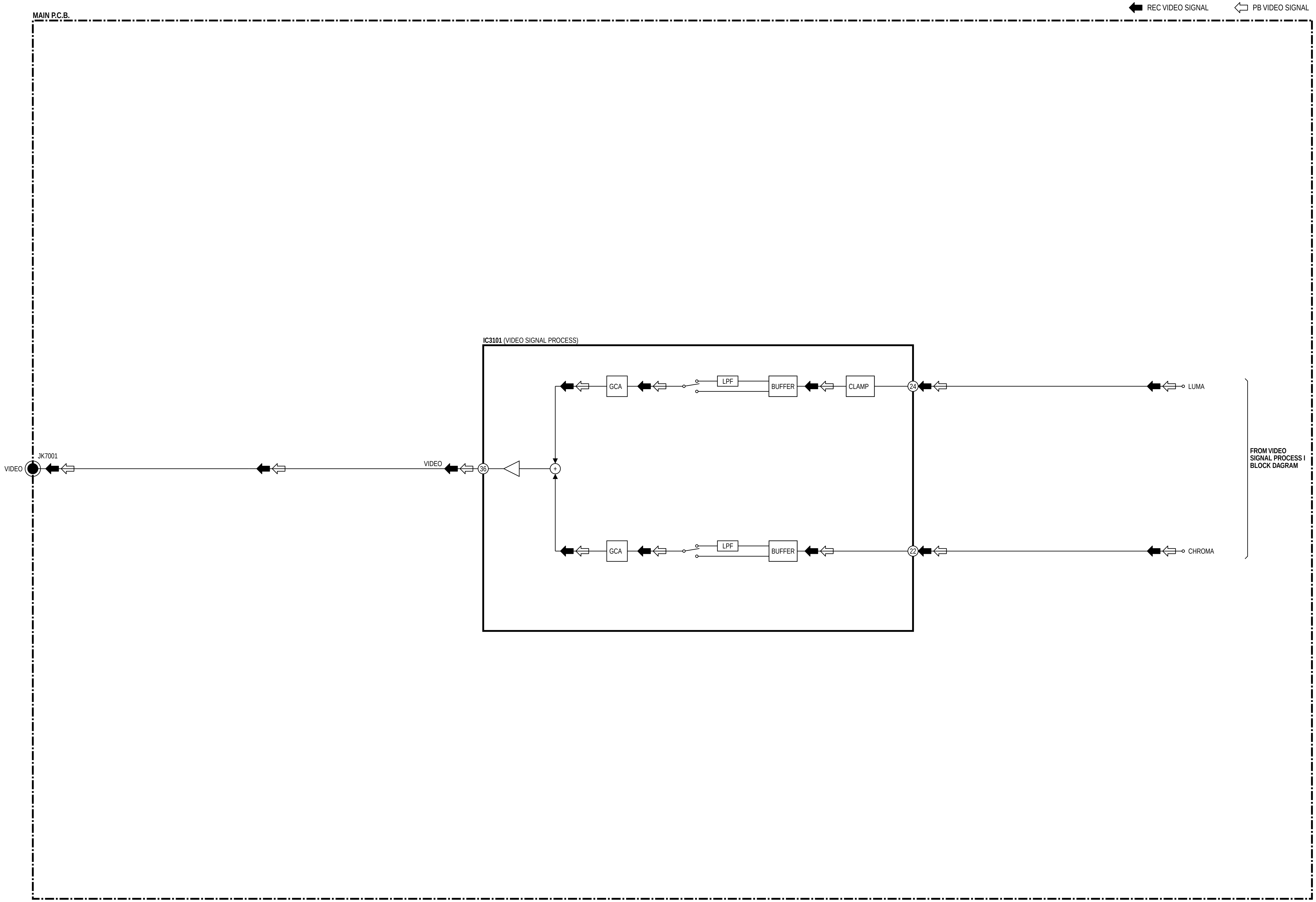
VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

VIDEO SIGNAL PROCESS II BLOCK DIAGRAM

REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL

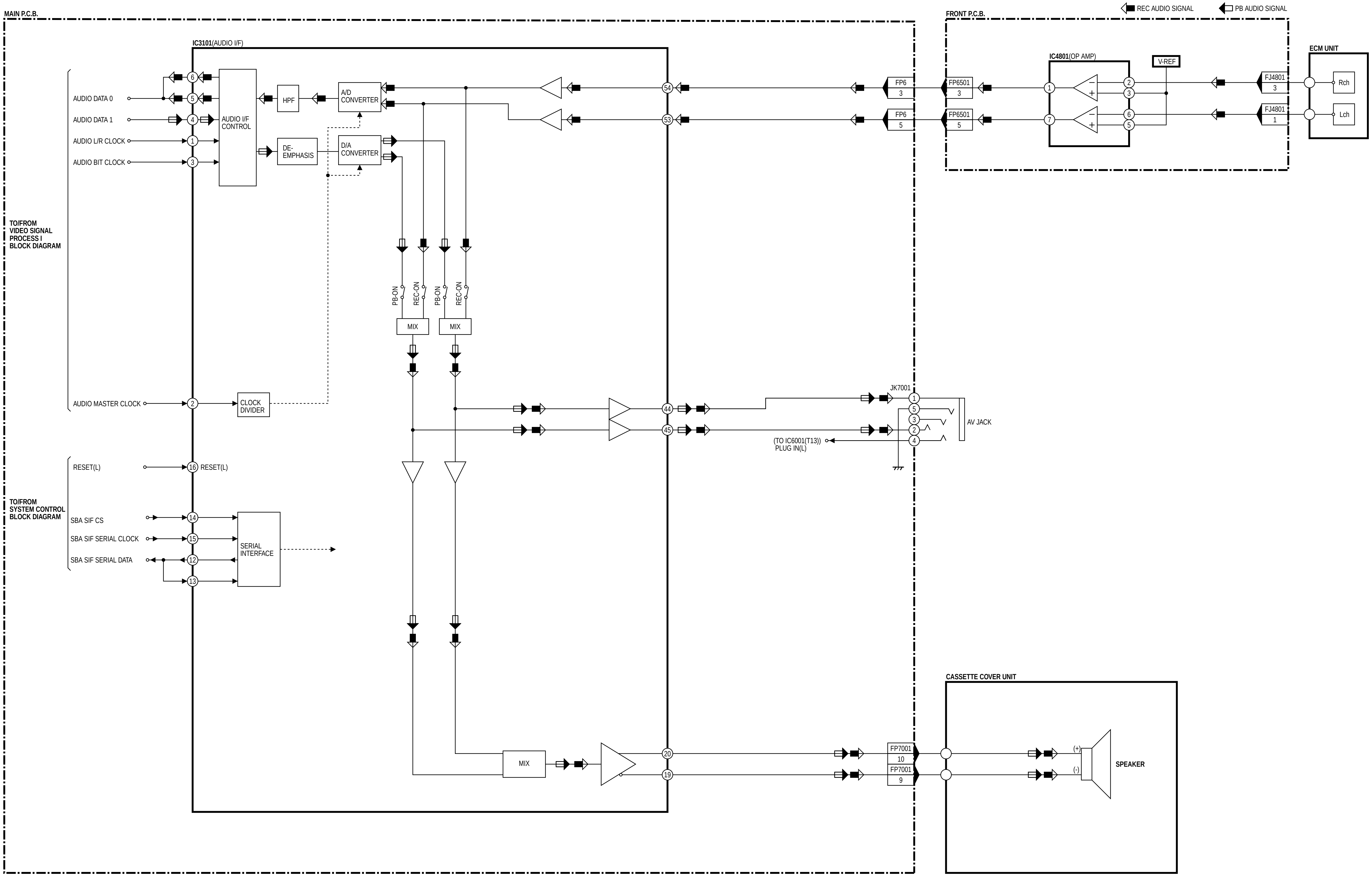

MAIN P.C.B.
CYLINDER UNIT
IC3201 (FORMATTING/EQUALIZER)
IC5001 (HEAD AMP)
TO/FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
DBR (0-3)
86 ~ 89
MODULATOR /DEMODULATOR
50
REC CLOCK
51
AGC CONTROL
33
VITERBI
EQUALIZER
A/D CONVERTER
AMP
9
ATF DET
BPF
A/D CONVERTER
AMP
11
REC-C CONTROL
34
EQ HOLD
49
REC CONTROL
53
HEAD SW PULSE 2
45
HEAD SW PULSE 1
44
PB(H)
54
REC ON/OFF CONTROL
48
(FROM SAFETY TAB SW) S-TAB ON(L)
8
10
LOGIC
DRIVE
GCA
3
AGC DET
6
AGC AMP
1
43
AMP
AMP
39
LPF
35
11
15
16
17
18
19
14
LOGIC
CH1 HEAD AMP
CH2 HEAD AMP
27
26
28
29
31
30
32
33
FP5
6
FP5
7
FP5
5
FP5
4
CH 1 HEAD
CH 2 HEAD
MICROCONTROLLER INTERFACE
RESET(L)
RESET(L)
109
39
74•76 ~ 78
27MHz CLOCK
84
READ(H)
81
VAL
79
FROM SYSTEM CONTROL BLOCK DIAGRAM
RESET(L)
TO/FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
ADDA (0-3)
27MHz CLOCK
READ(H)
VAL
HEAD SW PULSE 1

ANALOG VIDEO I/F BLOCK DIAGRAM


REC VIDEO SIGNAL
PB VIDEO SIGNAL
MAIN P.C.B.
IC3101 (VIDEO SIGNAL PROCESS)
GCA
LPF
BUFFER
CLAMP
24
LUMA
JK7001
VIDEO
VIDEO
36
+
FROM VIDEO
SIGNAL PROCESS I
BLOCK DAGRAM
GCA
LPF
BUFFER
22
CHROMA

ANALOG VIDEO I/F BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

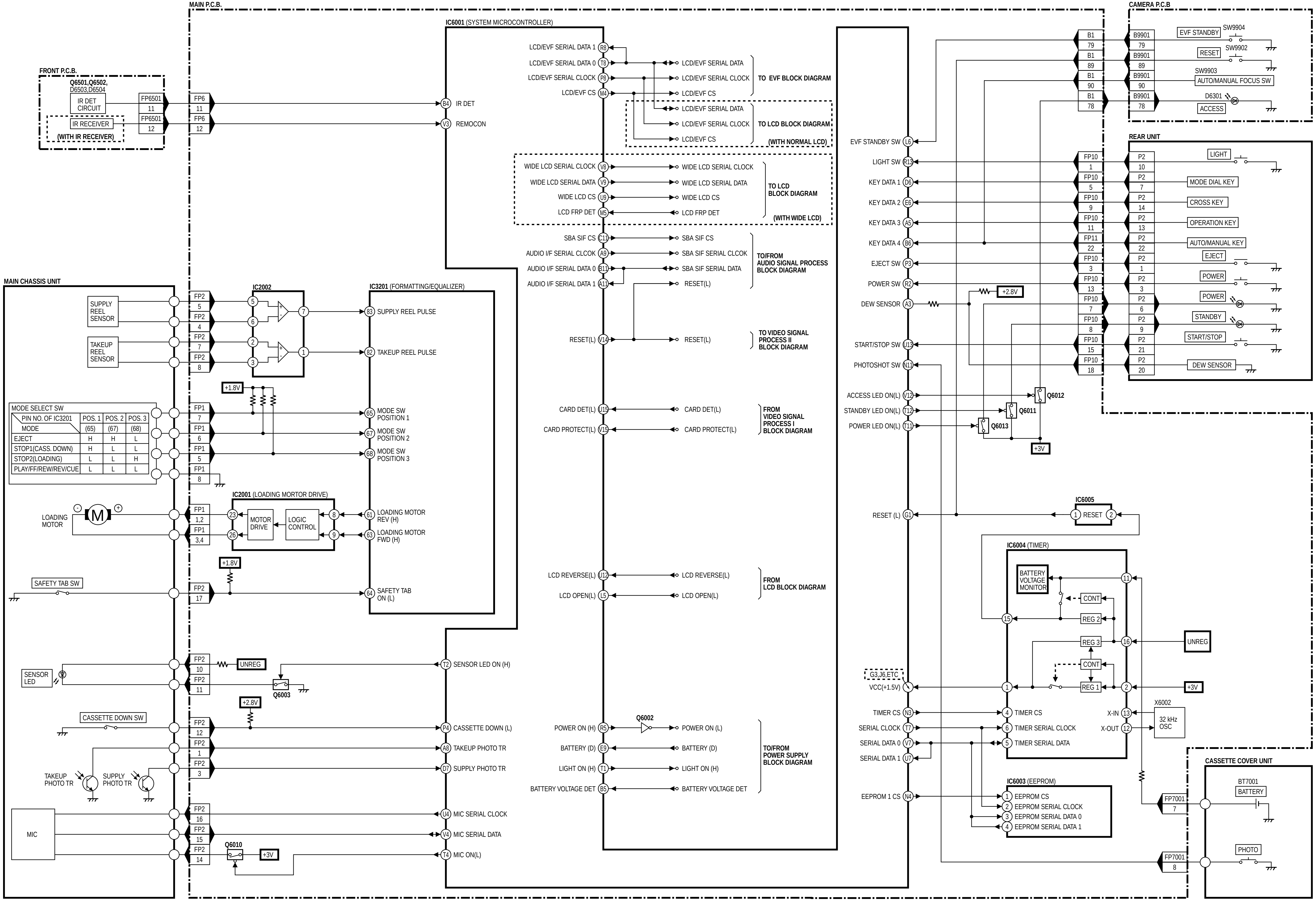
AUDIO SIGNAL PROCESS BLOCK DIAGRAM


REC AUDIO SIGNAL
PB AUDIO SIGNAL
MAIN P.C.B.
FRONT P.C.B.
IC3101(AUDIO I/F)
IC4801(OP AMP)
V-REF
ECM UNIT
Rch
Lch
FJ4801
3
FJ4801
1
FP6501
3
FP6501
5
FP6
3
FP6
5
AUDIO DATA 0
AUDIO DATA 1
AUDIO L/R CLOCK
AUDIO BIT CLOCK
AUDIO I/F CONTROL
HPF
DE-EMPHASIS
A/D CONVERTER
D/A CONVERTER
TO/FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
PB-ON
REC-ON
PB-ON
REC-ON
MIX
MIX
AUDIO MASTER CLOCK
CLOCK DIVIDER
JK7001
AV JACK
(TO IC6001(T13)) PLUG IN(L)
RESET(L)
RESET(L)
TO/FROM SYSTEM CONTROL BLOCK DIAGRAM
SBA SIF CS
SBA SIF SERIAL CLOCK
SBA SIF SERIAL DATA
SERIAL INTERFACE
CASSETTE COVER UNIT
MIX
FP7001
10
FP7001
9
(+)
(-)
SPEAKER
6
5
4
1
3
2
16
14
15
12
13
54
53
44
45
20
19
1
7
2
3
6
5
1
5
3
2
4

AUDIO SIGNAL PROCESS BLOCK DIAGRAM

NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

SYSTEM CONTROL BLOCK DIAGRAM

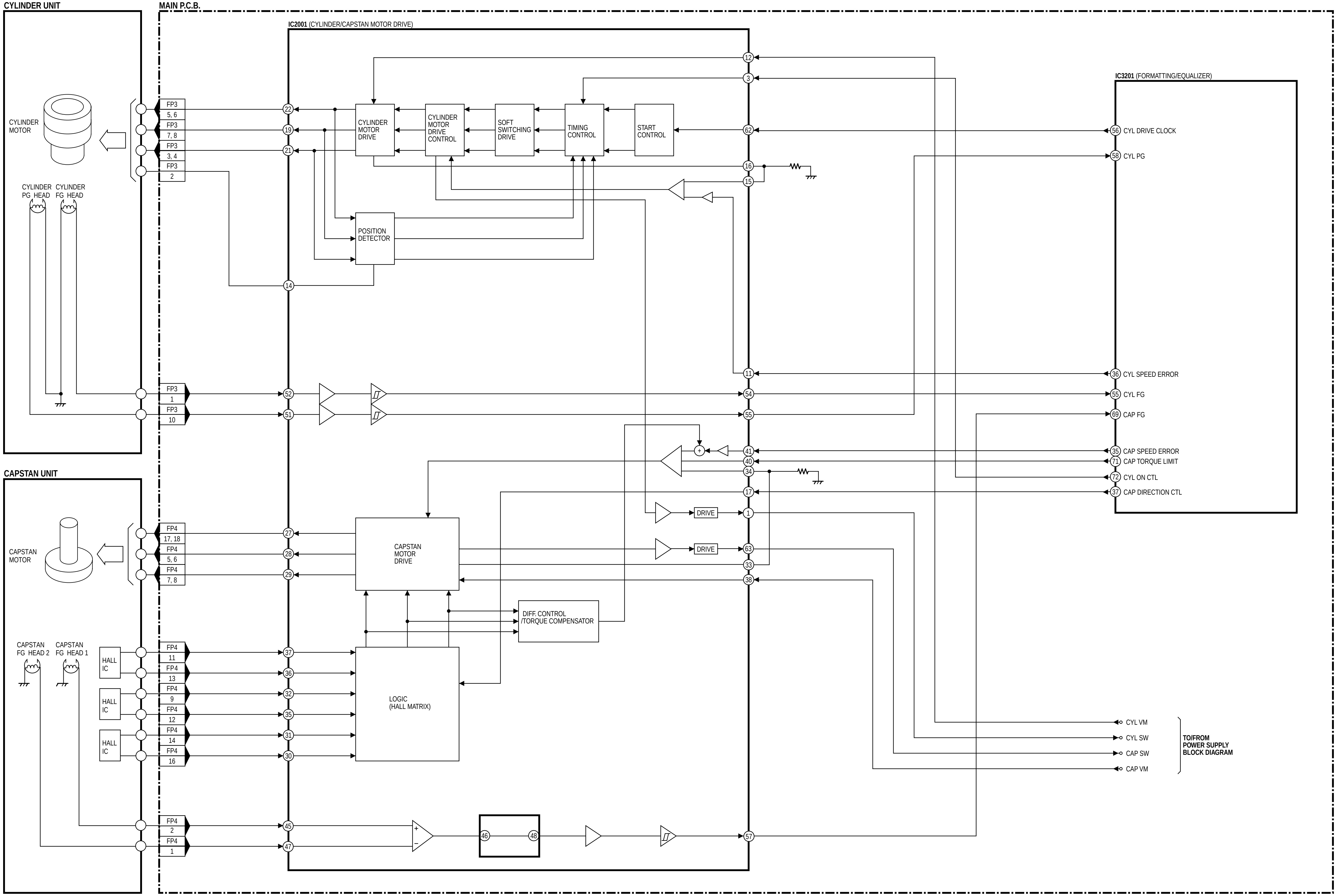

MAIN P.C.B.
FRONT P.C.B.
Q6501,Q6502, D6503,D6504
IR DET CIRCUIT
IR RECEIVER
(WITH IR RECEIVER)
FP6501 11
FP6501 12
FP6 11
FP6 12
IC6001 (SYSTEM MICROCONTROLLER)
IR DET (B4)
REMOCON (V3)
LCD/EVF SERIAL DATA 1 (R8)
LCD/EVF SERIAL DATA 0 (T8)
LCD/EVF SERIAL CLOCK (P8)
LCD/EVF CS (M4)
LCD/EVF SERIAL DATA
LCD/EVF SERIAL CLOCK
LCD/EVF CS
TO EVF BLOCK DIAGRAM
TO LCD BLOCK DIAGRAM
(WITH NORMAL LCD)
WIDE LCD SERIAL CLOCK (V8)
WIDE LCD SERIAL DATA (V9)
WIDE LCD CS (U9)
LCD FRP DET (M5)
TO LCD BLOCK DIAGRAM
(WITH WIDE LCD)
SBA SIF CS (C11)
AUDIO I/F SERIAL CLCOK (A9)
AUDIO I/F SERIAL DATA 0 (B11)
AUDIO I/F SERIAL DATA 1 (A11)
SBA SIF CS
SBA SIF SERIAL CLCOK
SBA SIF SERIAL DATA
RESET(L)
TO/FROM AUDIO SIGNAL PROCESS BLOCK DIAGRAM
RESET(L) (V14)
TO VIDEO SIGNAL PROCESS II BLOCK DIAGRAM
CARD DET(L) (J15)
CARD PROTECT(L) (V15)
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
LCD REVERSE(L) (J12)
LCD OPEN(L) (L5)
FROM LCD BLOCK DIAGRAM
POWER ON (H) (R5)
BATTERY (D) (E9)
LIGHT ON (H) (T1)
BATTERY VOLTAGE DET (B5)
Q6002
POWER ON (L)
BATTERY (D)
LIGHT ON (H)
BATTERY VOLTAGE DET
TO/FROM POWER SUPPLY BLOCK DIAGRAM
MAIN CHASSIS UNIT
SUPPLY REEL SENSOR
TAKEUP REEL SENSOR
FP2 5
FP2 4
FP2 7
FP2 8
IC2002
IC3201 (FORMATTING/EQUALIZER)
SUPPLY REEL PULSE (83)
TAKEUP REEL PULSE (82)
+1.8V
FP1 7
FP1 6
FP1 5
FP1 8
MODE SW POSITION 1 (65)
MODE SW POSITION 2 (67)
MODE SW POSITION 3 (68)
IC2001 (LOADING MORTOR DRIVE)
MOTOR DRIVE
LOGIC CONTROL
LOADING MOTOR
M
FP1 1,2
FP1 3,4
LOADING MOTOR REV (H) (61)
LOADING MOTOR FWD (H) (63)
+1.8V
SAFETY TAB SW
FP2 17
SAFETY TAB ON (L) (64)
SENSOR LED
FP2 10
FP2 11
UNREG
Q6003
SENSOR LED ON (H) (T2)
CASSETTE DOWN SW
+2.8V
FP2 12
FP2 1
FP2 3
CASSETTE DOWN (L) (P4)
TAKEUP PHOTO TR (A8)
SUPPLY PHOTO TR (D7)
TAKEUP PHOTO TR
SUPPLY PHOTO TR
MIC
FP2 16
FP2 15
FP2 14
Q6010
+3V
MIC SERIAL CLOCK (U4)
MIC SERIAL DATA (V4)
MIC ON(L) (T4)
CAMERA P.C.B
B1 79
B1 89
B1 90
B1 78
B9901 79
B9901 89
B9901 90
B9901 78
EVF STANDBY SW9904
RESET SW9902
SW9903 AUTO/MANUAL FOCUS SW
D6301
ACCESS
REAR UNIT
EVF STANDBY SW (L6)
LIGHT SW (R13)
KEY DATA 1 (D6)
KEY DATA 2 (E6)
KEY DATA 3 (A5)
KEY DATA 4 (B6)
EJECT SW (P3)
POWER SW (R2)
DEW SENSOR (A3)
START/STOP SW (J13)
PHOTOSHOT SW (N11)
FP10 1
FP10 5
FP10 9
FP10 11
FP11 22
FP10 3
FP10 13
FP10 7
FP10 8
FP10 15
FP10 18
P2 10
P2 7
P2 14
P2 13
P2 22
P2 1
P2 3
P2 6
P2 9
P2 21
P2 20
LIGHT
MODE DIAL KEY
CROSS KEY
OPERATION KEY
AUTO/MANUAL KEY
EJECT
POWER
POWER
STANDBY
START/STOP
DEW SENSOR
+2.8V
ACCESS LED ON(L) (V12)
STANDBY LED ON(L) (T12)
POWER LED ON(L) (T11)
Q6012
Q6011
Q6013
+3V
IC6005
RESET
RESET (L) (G1)
IC6004 (TIMER)
BATTERY VOLTAGE MONITOR
CONT
REG 2
REG 3
CONT
REG 1
UNREG
+3V
G3,J6,ETC
VCC(+1.5V)
TIMER CS (N3)
SERIAL CLOCK (T7)
SERIAL DATA 0 (V7)
SERIAL DATA 1 (U7)
TIMER CS
TIMER SERIAL CLOCK
TIMER SERIAL DATA
X-IN
X-OUT
X6002
32 kHz OSC
IC6003 (EEPROM)
EEPROM 1 CS (N4)
EEPROM CS
EEPROM SERIAL CLOCK
EEPROM SERIAL DATA 0
EEPROM SERIAL DATA 1
CASSETTE COVER UNIT
BT7001
BATTERY
FP7001 7
FP7001 8
PHOTO

MODE SELECT SW

PIN NO. OF IC3201	POS. 1	POS. 2	POS. 3
MODE	(65)	(67)	(68)
EJECT	H	H	L
STOP1(CASS. DOWN)	H	L	L
STOP2(LOADING)	L	L	H
PLAY/FF/REW/REV/CUE	L	L	L

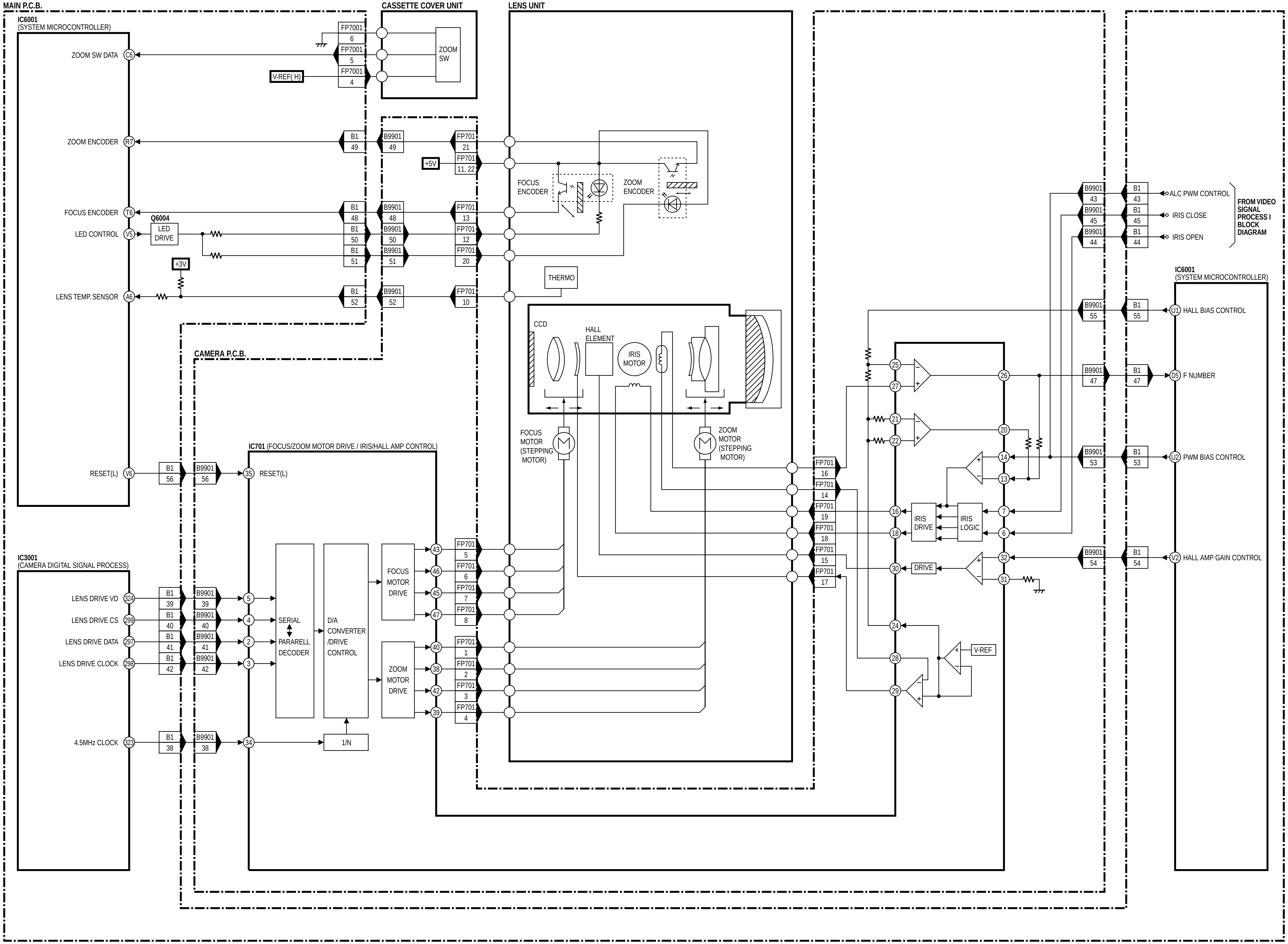
SYSTEM CONTROL BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

SERVO BLOCK DIAGRAM


CYLINDER UNIT
MAIN P.C.B.
IC2001 (CYLINDER/CAPSTAN MOTOR DRIVE)
IC3201 (FORMATTING/EQUALIZER)
CYLINDER MOTOR
CYLINDER PG HEAD
CYLINDER FG HEAD
FP3
5, 6
7, 8
3, 4
2
1
10
CYLINDER MOTOR DRIVE
CYLINDER MOTOR DRIVE CONTROL
SOFT SWITCHING DRIVE
TIMING CONTROL
START CONTROL
POSITION DETECTOR
CYL DRIVE CLOCK
CYL PG
CYL SPEED ERROR
CYL FG
CAP FG
CAP SPEED ERROR
CAP TORQUE LIMIT
CYL ON CTL
CAP DIRECTION CTL
DRIVE
DRIVE
CAPSTAN UNIT
CAPSTAN MOTOR
FP4
17, 18
5, 6
7, 8
CAPSTAN MOTOR DRIVE
DIFF. CONTROL /TORQUE COMPENSATOR
CAPSTAN FG HEAD 2
CAPSTAN FG HEAD 1
HALL IC
HALL IC
HALL IC
11
13
9
12
14
16
LOGIC (HALL MATRIX)
CYL VM
CYL SW
CAP SW
CAP VM
TO/FROM POWER SUPPLY BLOCK DIAGRAM
12
3
22
19
21
62
16
15
14
52
51
54
55
11
41
40
34
17
1
63
33
38
27
28
29
37
36
32
35
31
30
45
47
46
48
57
56
58
36
55
69
35
71
72
37

SERVO BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

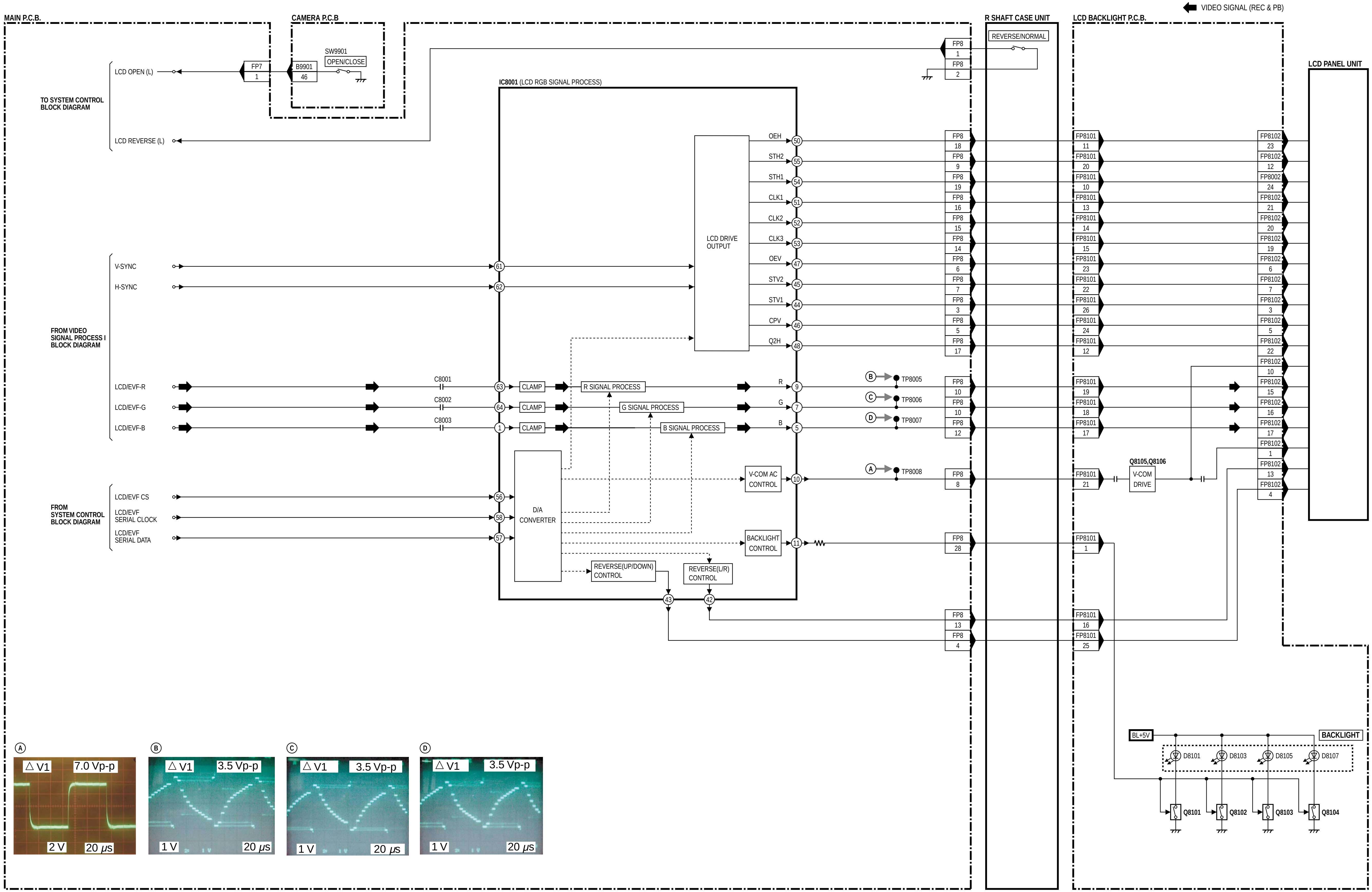
AF BLOCK DIAGRAM


MAIN P.C.B.
IC6001
(SYSTEM MICROCONTROLLER)
ZOOM SW DATA
C6
ZOOM ENCODER
R7
FOCUS ENCODER
T6
Q6004
LED CONTROL
V5
LED DRIVE
+3V
LENS TEMP. SENSOR
A6
RESET(L)
V6
IC3001
(CAMERA DIGITAL SIGNAL PROCESS)
LENS DRIVE VD
324
LENS DRIVE CS
299
LENS DRIVE DATA
297
LENS DRIVE CLOCK
298
4.5MHz CLOCK
323
CASSETTE COVER UNIT
FP7001
V-REF(H)
ZOOM SW
LENS UNIT
B1
B9901
FP701
+5V
FOCUS ENCODER
ZOOM ENCODER
THERMO
CCD
HALL ELEMENT
IRIS MOTOR
FOCUS MOTOR (STEPPING MOTOR)
ZOOM MOTOR (STEPPING MOTOR)
CAMERA P.C.B.
IC701 (FOCUS/ZOOM MOTOR DRIVE / IRIS/HALL AMP CONTROL)
RESET(L)
SERIAL PARARELL DECODER
D/A CONVERTER /DRIVE CONTROL
FOCUS MOTOR DRIVE
ZOOM MOTOR DRIVE
1/N
IRIS DRIVE
IRIS LOGIC
DRIVE
V-REF
ALC PWM CONTROL
IRIS CLOSE
IRIS OPEN
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
IC6001
(SYSTEM MICROCONTROLLER)
U1
HALL BIAS CONTROL
D5
F NUMBER
U2
PWM BIAS CONTROL
V2
HALL AMP GAIN CONTROL

AF BLOCK DIAGRAM

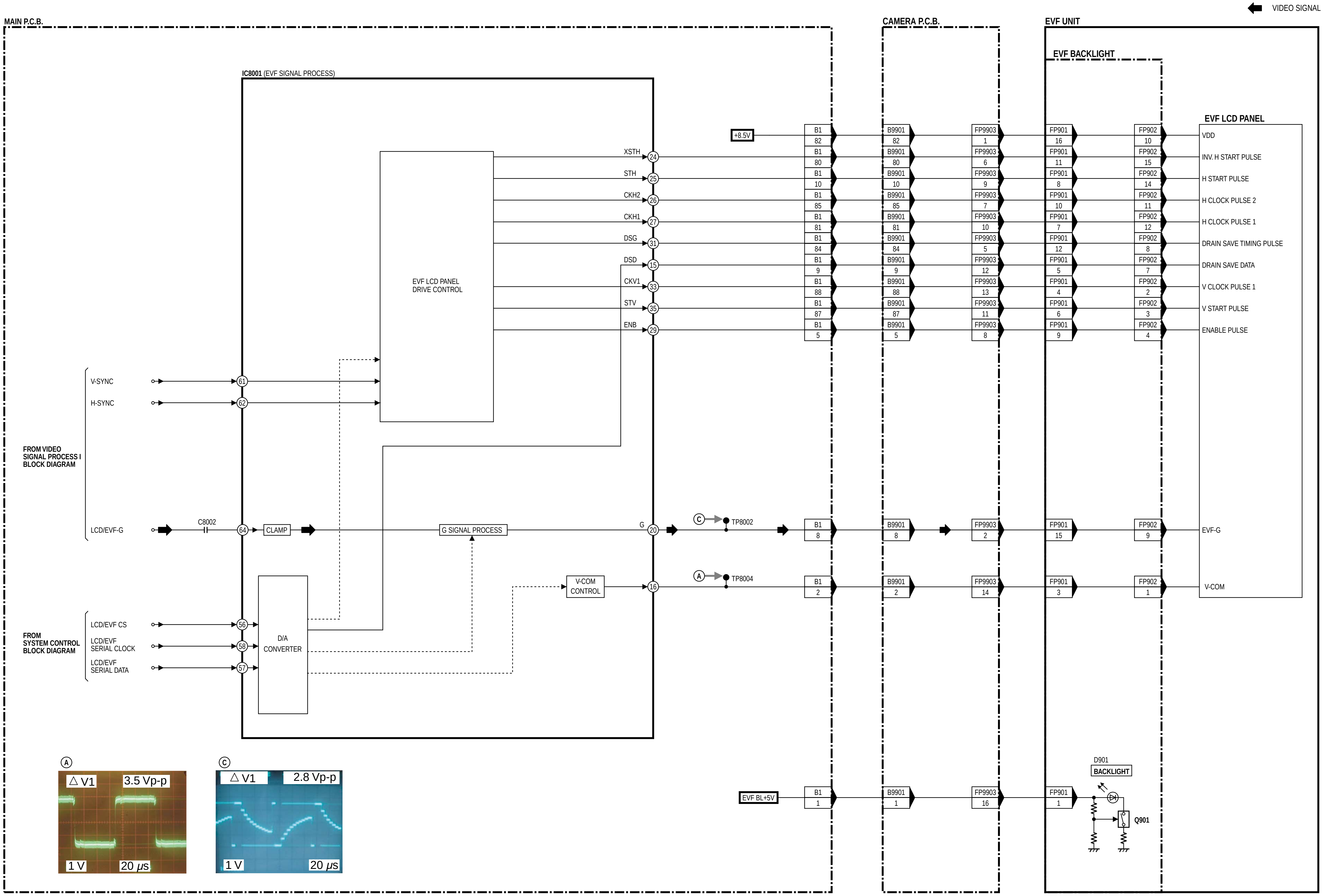
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

LCD DRIVE BLOCK DIAGRAM

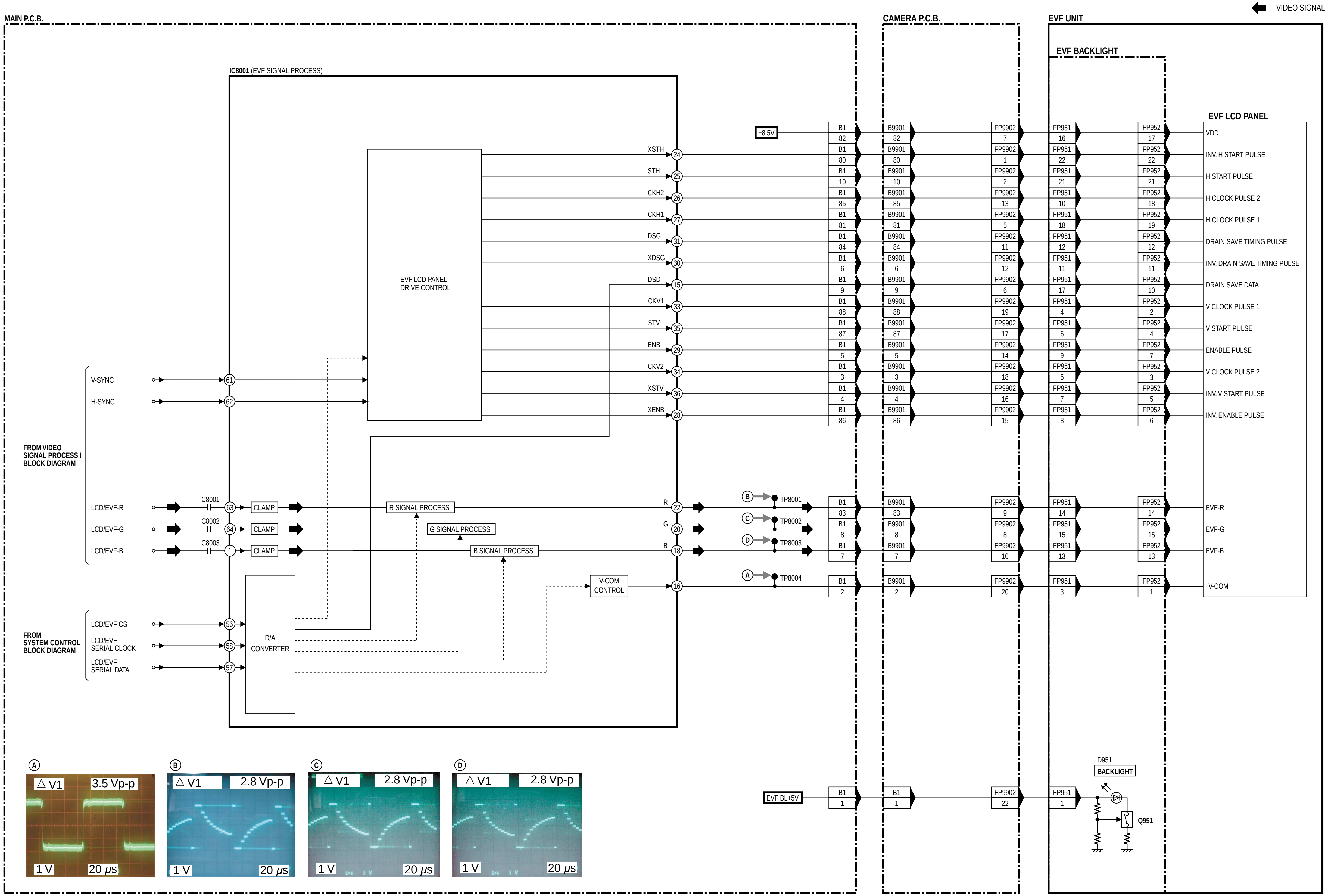

VIDEO SIGNAL (REC & PB)
MAIN P.C.B.
CAMERA P.C.B
R SHAFT CASE UNIT
LCD BACKLIGHT P.C.B.
LCD PANEL UNIT
REVERSE/NORMAL
TO SYSTEM CONTROL BLOCK DIAGRAM
LCD OPEN (L)
LCD REVERSE (L)
FP7 1
B9901 46
SW9901 OPEN/CLOSE
IC8001 (LCD RGB SIGNAL PROCESS)
LCD DRIVE OUTPUT
OEH 50
STH2 55
STH1 54
CLK1 51
CLK2 52
CLK3 53
OEV 47
STV2 45
STV1 44
CPV 46
Q2H 48
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
V-SYNC 61
H-SYNC 62
LCD/EVF-R
LCD/EVF-G
LCD/EVF-B
C8001
C8002
C8003
CLAMP
R SIGNAL PROCESS
G SIGNAL PROCESS
B SIGNAL PROCESS
R 9
G 7
B 5
TP8005
TP8006
TP8007
TP8008
FROM SYSTEM CONTROL BLOCK DIAGRAM
LCD/EVF CS
LCD/EVF SERIAL CLOCK
LCD/EVF SERIAL DATA
D/A CONVERTER
V-COM AC CONTROL
BACKLIGHT CONTROL
REVERSE(UP/DOWN) CONTROL
REVERSE(L/R) CONTROL
Q8105,Q8106
V-COM DRIVE
FP8
FP8101
FP8102
FP8002
BL+5V
BACKLIGHT
D8101
D8103
D8105
D8107
Q8101
Q8102
Q8103
Q8104
A △V1 7.0 Vp-p 2 V 20 μs
B △V1 3.5 Vp-p 1 V 20 μs
C △V1 3.5 Vp-p 1 V 20 μs
D △V1 3.5 Vp-p 1 V 20 μs

LCD DRIVE BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

EVF BLOCK DIAGRAM (Models: NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS47EE/GC)

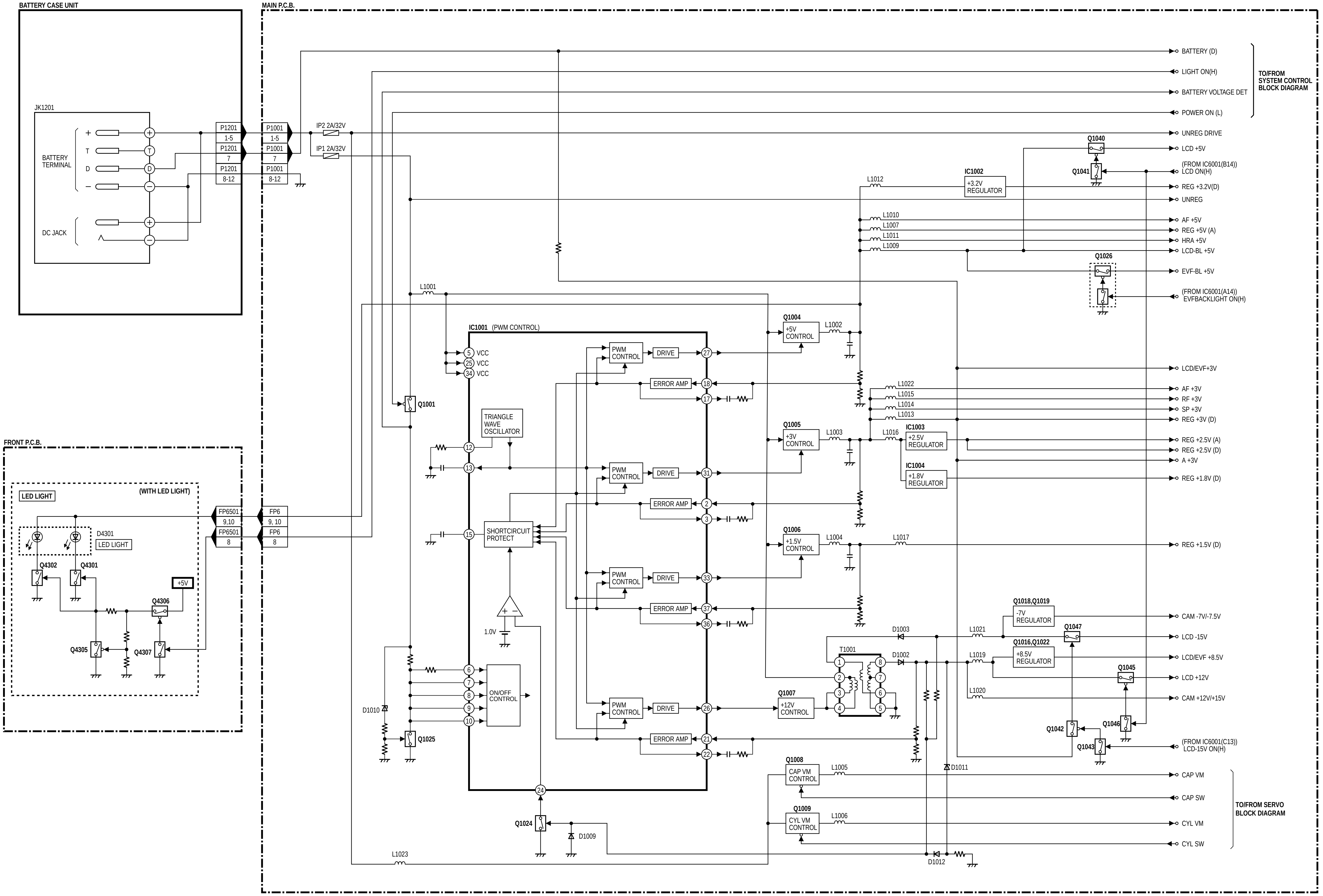

VIDEO SIGNAL
MAIN P.C.B.
CAMERA P.C.B.
EVF UNIT
EVF BACKLIGHT
IC8001 (EVF SIGNAL PROCESS)
EVF LCD PANEL
EVF LCD PANEL DRIVE CONTROL
+8.5V
XSTH 24
STH 25
CKH2 26
CKH1 27
DSG 31
DSD 15
CKV1 33
STV 35
ENB 29
B1 82 / B9901 82 / FP9903 1 / FP901 16 / FP902 10 VDD
B1 80 / B9901 80 / FP9903 6 / FP901 11 / FP902 15 INV. H START PULSE
B1 10 / B9901 10 / FP9903 9 / FP901 8 / FP902 14 H START PULSE
B1 85 / B9901 85 / FP9903 7 / FP901 10 / FP902 11 H CLOCK PULSE 2
B1 81 / B9901 81 / FP9903 10 / FP901 7 / FP902 12 H CLOCK PULSE 1
B1 84 / B9901 84 / FP9903 5 / FP901 12 / FP902 8 DRAIN SAVE TIMING PULSE
B1 9 / B9901 9 / FP9903 12 / FP901 5 / FP902 7 DRAIN SAVE DATA
B1 88 / B9901 88 / FP9903 13 / FP901 4 / FP902 2 V CLOCK PULSE 1
B1 87 / B9901 87 / FP9903 11 / FP901 6 / FP902 3 V START PULSE
B1 5 / B9901 5 / FP9903 8 / FP901 9 / FP902 4 ENABLE PULSE
V-SYNC 61
H-SYNC 62
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
LCD/EVF-G
C8002
64
CLAMP
G SIGNAL PROCESS
G 20
C TP8002
B1 8 / B9901 8 / FP9903 2 / FP901 15 / FP902 9 EVF-G
V-COM CONTROL
16
A TP8004
B1 2 / B9901 2 / FP9903 14 / FP901 3 / FP902 1 V-COM
FROM SYSTEM CONTROL BLOCK DIAGRAM
LCD/EVF CS 56
LCD/EVF SERIAL CLOCK 58
LCD/EVF SERIAL DATA 57
D/A CONVERTER
EVF BL+5V
B1 1 / B9901 1 / FP9903 16 / FP901 1
D901
BACKLIGHT
Q901
A
△ V1
3.5 Vp-p
1 V
20 μs
C
△ V1
2.8 Vp-p
1 V
20 μs

EVF BLOCK DIAGRAM (Models: NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK)



VIDEO SIGNAL
MAIN P.C.B.
CAMERA P.C.B.
EVF UNIT
EVF BACKLIGHT
EVF LCD PANEL
IC8001 (EVF SIGNAL PROCESS)
EVF LCD PANEL DRIVE CONTROL
+8.5V
XSTH
STH
CKH2
CKH1
DSG
XDSG
DSD
CKV1
STV
ENB
CKV2
XSTV
XENB
24
25
26
27
31
30
15
33
35
29
34
36
28
B1
B9901
FP9902
FP951
FP952
VDD
INV. H START PULSE
H START PULSE
H CLOCK PULSE 2
H CLOCK PULSE 1
DRAIN SAVE TIMING PULSE
INV. DRAIN SAVE TIMING PULSE
DRAIN SAVE DATA
V CLOCK PULSE 1
V START PULSE
ENABLE PULSE
V CLOCK PULSE 2
INV. V START PULSE
INV. ENABLE PULSE
V-SYNC
H-SYNC
61
62
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
LCD/EVF-R
LCD/EVF-G
LCD/EVF-B
C8001
C8002
C8003
63
64
1
CLAMP
R SIGNAL PROCESS
G SIGNAL PROCESS
B SIGNAL PROCESS
R
G
B
22
20
18
TP8001
TP8002
TP8003
TP8004
EVF-R
EVF-G
EVF-B
V-COM
V-COM CONTROL
16
FROM SYSTEM CONTROL BLOCK DIAGRAM
LCD/EVF CS
LCD/EVF SERIAL CLOCK
LCD/EVF SERIAL DATA
56
58
57
D/A CONVERTER
EVF BL+5V
D951
BACKLIGHT
Q951
A
△V1
3.5 Vp-p
1 V
20 μs
B
△V1
2.8 Vp-p
1 V
20 μs
C
△V1
2.8 Vp-p
1 V
20 μs
D
△V1
2.8 Vp-p
1 V
20 μs

POWER SUPPLY BLOCK DIAGRAM


BATTERY CASE UNIT
MAIN P.C.B.
JK1201
BATTERY TERMINAL
+
T
D
−
DC JACK
P1201
1-5
P1201
7
P1201
8-12
P1001
1-5
P1001
7
P1001
8-12
IP2 2A/32V
IP1 2A/32V
BATTERY (D)
LIGHT ON(H)
BATTERY VOLTAGE DET
POWER ON (L)
TO/FROM SYSTEM CONTROL BLOCK DIAGRAM
UNREG DRIVE
Q1040
LCD +5V
Q1041
(FROM IC6001(B14)) LCD ON(H)
IC1002
+3.2V REGULATOR
L1012
REG +3.2V(D)
UNREG
L1010
L1007
L1011
L1009
AF +5V
REG +5V (A)
HRA +5V
LCD-BL +5V
Q1026
EVF-BL +5V
(FROM IC6001(A14)) EVFBACKLIGHT ON(H)
L1001
IC1001 (PWM CONTROL)
VCC
VCC
VCC
PWM CONTROL
DRIVE
ERROR AMP
TRIANGLE WAVE OSCILLATOR
SHORTCIRCUIT PROTECT
ON/OFF CONTROL
1.0V
Q1001
Q1004
+5V CONTROL
L1002
LCD/EVF+3V
L1022
L1015
L1014
L1013
AF +3V
RF +3V
SP +3V
REG +3V (D)
Q1005
+3V CONTROL
L1003
L1016
IC1003
+2.5V REGULATOR
REG +2.5V (A)
REG +2.5V (D)
A +3V
IC1004
+1.8V REGULATOR
REG +1.8V (D)
Q1006
+1.5V CONTROL
L1004
L1017
REG +1.5V (D)
Q1018,Q1019
-7V REGULATOR
CAM -7V/-7.5V
D1003
L1021
Q1047
LCD -15V
Q1016,Q1022
+8.5V REGULATOR
T1001
D1002
L1019
LCD/EVF +8.5V
Q1045
LCD +12V
L1020
CAM +12V/+15V
Q1007
+12V CONTROL
Q1042
Q1046
Q1043
(FROM IC6001(C13)) LCD-15V ON(H)
D1011
Q1008
CAP VM CONTROL
L1005
CAP VM
CAP SW
Q1009
CYL VM CONTROL
L1006
CYL VM
CYL SW
TO/FROM SERVO BLOCK DIAGRAM
D1012
L1023
Q1024
D1009
D1010
Q1025
FRONT P.C.B.
LED LIGHT
(WITH LED LIGHT)
D4301
LED LIGHT
Q4302
Q4301
+5V
Q4306
Q4305
Q4307
FP6501
9,10
FP6501
8
FP6
9, 10
FP6
8

POWER SUPPLY BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

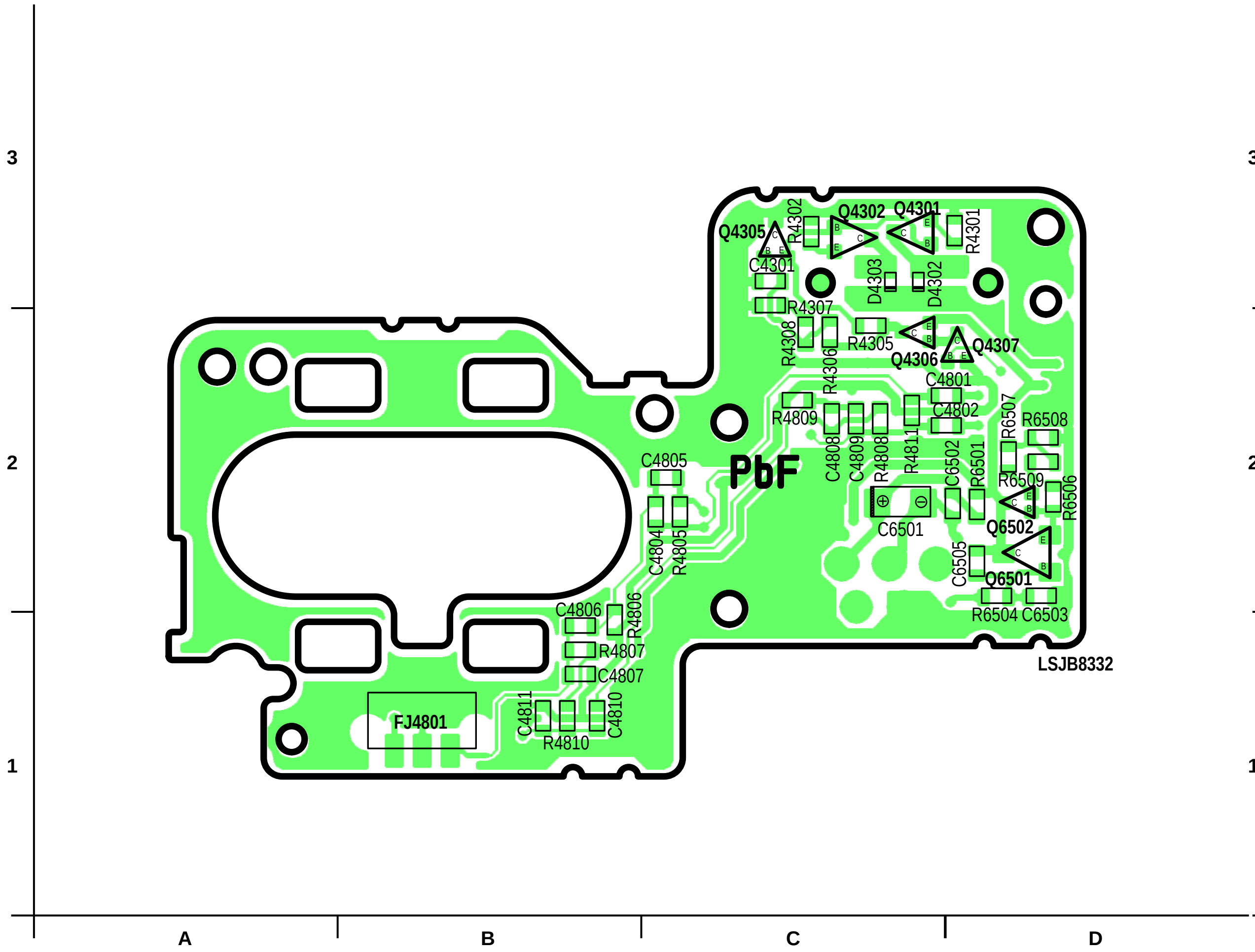
FRONT P.C.B. LSEP8332A1 NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN
LSEP8332C1 NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK
LSEP8332D1 NV-GS47EE/GC

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

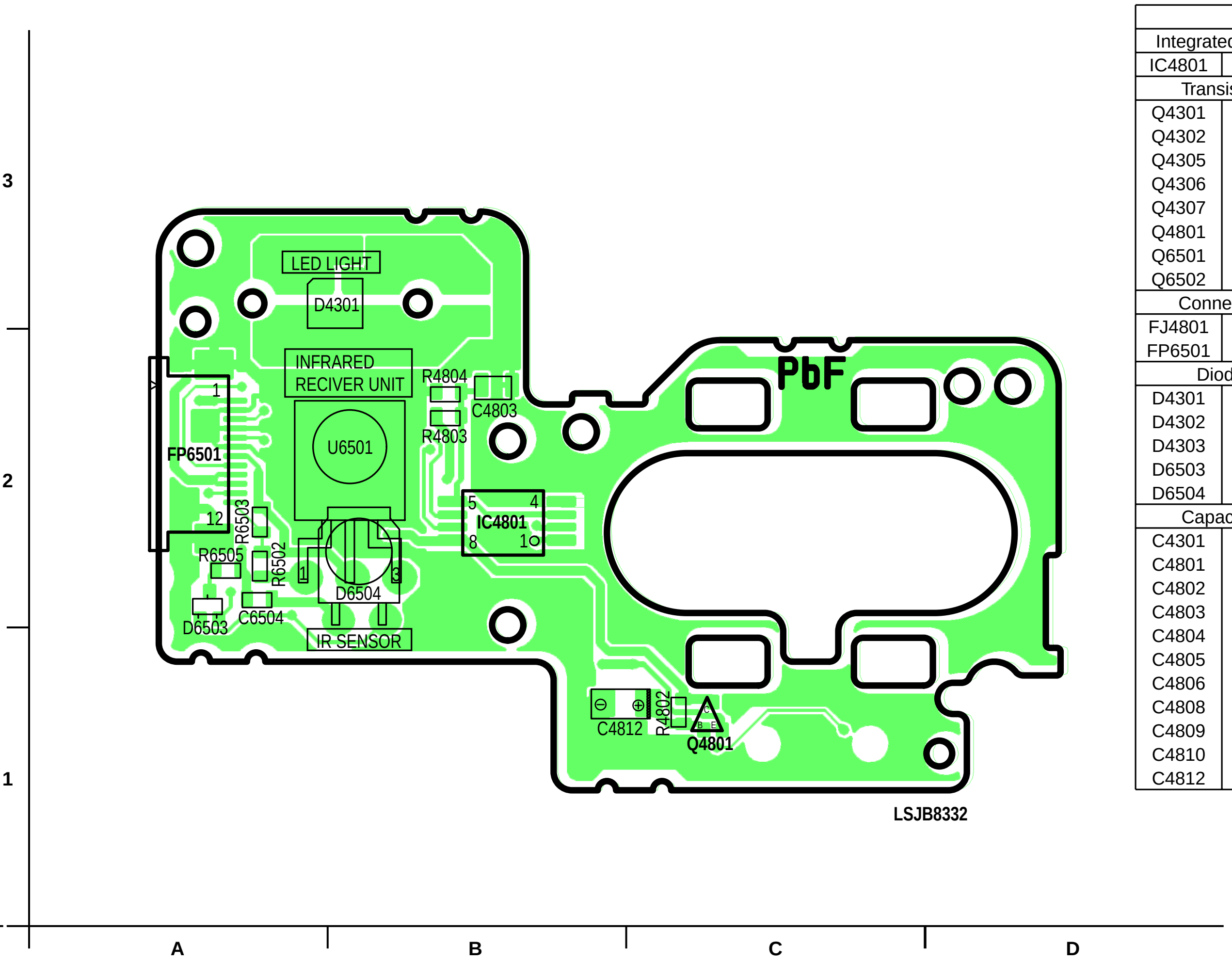
(COMPONENT SIDE)



3
2
1
A
B
C
D
Q4305
R4302
Q4302
Q4301
R4301
C4301
D4303
D4302
R4307
R4308
R4305
R4306
Q4306
Q4307
C4801
C4802
R4809
C4808
C4809
R4808
R4811
C6502
R6501
R6507
R6508
R6509
R6506
C4805
PbF
C4804
R4805
C6501
Q6502
C6505
Q6501
R6504
C6503
C4806
R4806
R4807
C4807
FJ4801
C4811
R4810
C4810
LSJB8332

(DUAL PATTERNS)

(FOIL SIDE)



3
2
1
A
B
C
D
LED LIGHT
D4301
INFRARED
RECIVER UNIT
R4804
C4803
R4803
FP6501
1
12
U6501
5
4
IC4801
8
1
R6503
R6505
R6502
D6504
D6503
C6504
IR SENSOR
PbF
C4812
R4802
Q4801
LSJB8332

(DUAL PATTERNS)

Parts Location

FRONT P.C.B.		
Integrated Circuit		
IC4801	B-2	F
Transisters		
Q4301	C-3	C
Q4302	C-3	C
Q4305	C-3	C
Q4306	C-2	C
Q4307	D-2	C
Q4801	C-1	F
Q6501	D-2	C
Q6502	D-2	C
Connectors		
FJ4801	B-1	C
FP6501	A-2	F
Diodes		
D4301	B-3	F
D4302	C-3	C
D4303	C-3	C
D6503	A-2	F
D6504	B-2	F
Capacitors		
C4301	C-3	C
C4801	C-2	C
C4802	C-2	C
C4803	B-2	F
C4804	C-2	C
C4805	C-2	C
C4806	B-1	C
C4808	C-2	C
C4809	C-2	C
C4810	B-1	C
C4812	B-1	F
C6501	C-2	C
C6502	D-2	C
C6503	D-2	C
C6504	A-2	F
Resistors		
R4301	D-3	C
R4302	C-3	C
R4305	C-2	C
R4306	C-2	C
R4307	C-2	C
R4308	C-2	C
R4802	C-1	F
R4803	B-2	F
R4804	B-2	F
R4805	C-2	C
R4806	B-1	C
R4807	B-1	C
R4808	C-2	C
R4809	C-2	C
R4810	B-1	C
R6501	D-2	C
R6502	A-2	F
R6503	A-2	F
R6504	D-2	C
R6505	A-2	F
R6506	D-2	C
R6507	D-2	C
R6508	D-2	C
R6509	D-2	C
Miscellaneous		
U6501	B-2	F

LCD BACKLIGHT P.C.B. LSEP8334A1

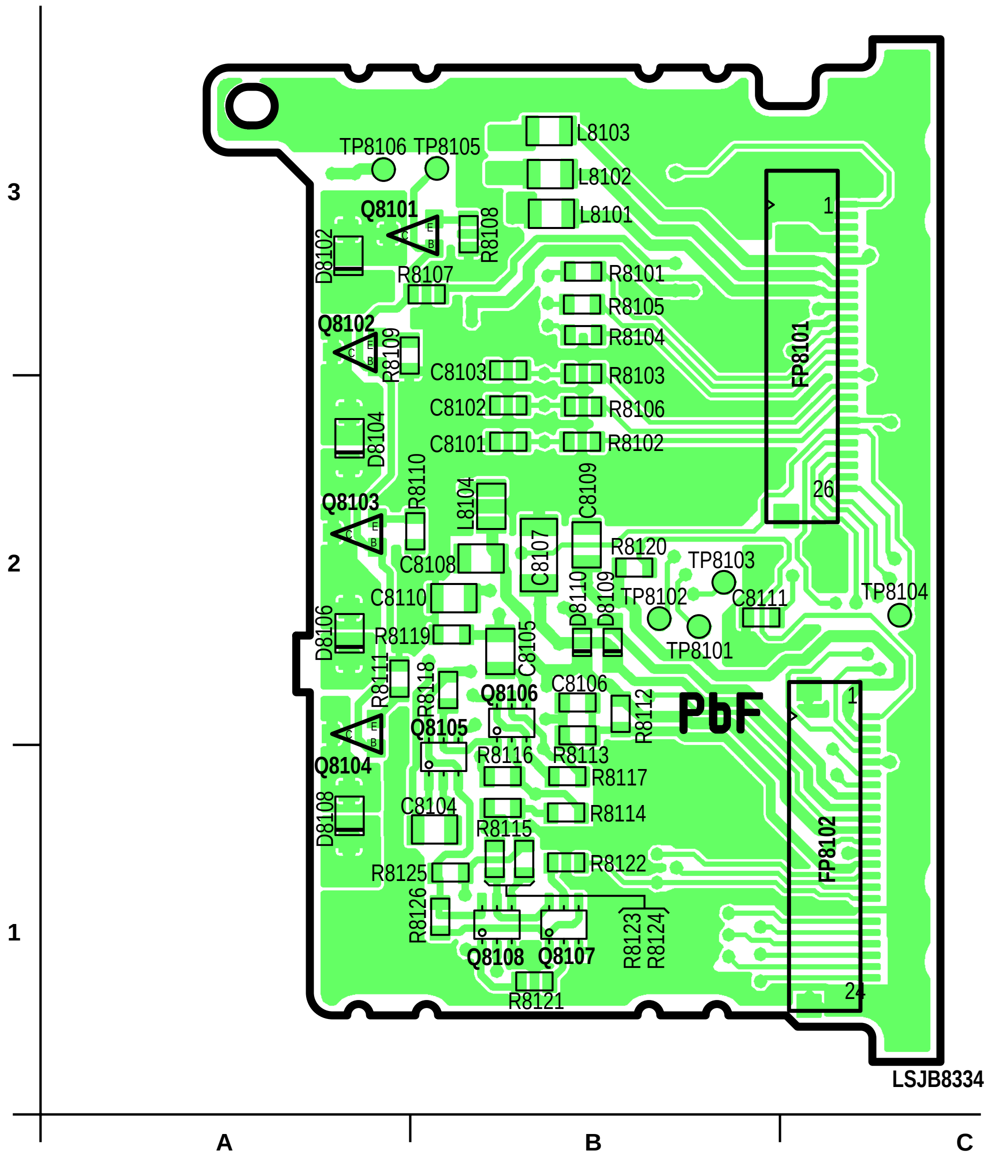
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

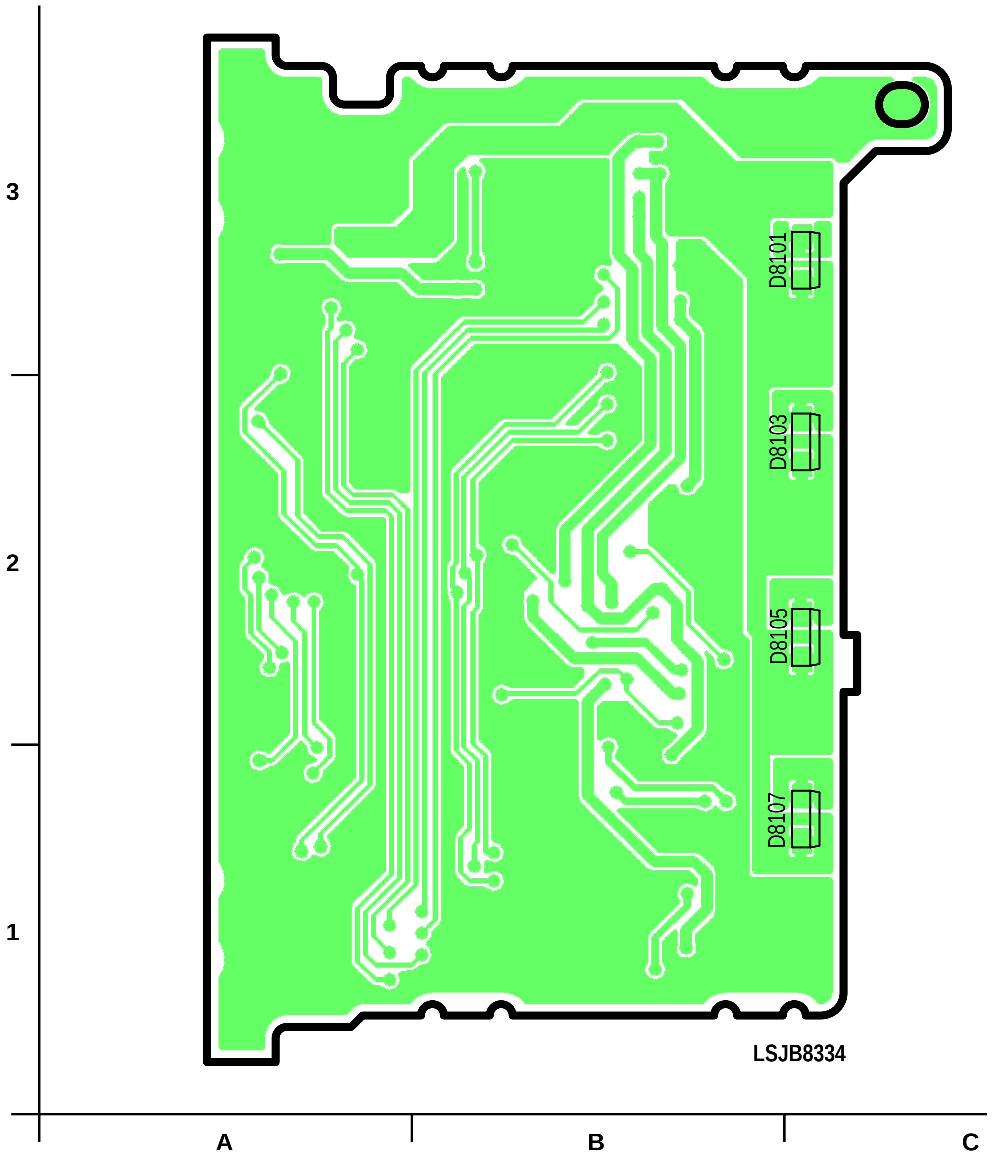
NOTE:
ALL INDIVIDUAL PARTS EXCEPT D8101, D8103, D8105, AND D8107
ON LCD BACKLIGHT P.C.B. ARE SUPPLIED AS REPLACEMENT PARTS.
WHEN SERVICING THESE PARTS, REPLACE LCD BACKLIGHT P.C.B.
INSTEAD OF INDIVIDUAL PARTS.

(COMPONENT SIDE)


TP8106
TP8105
L8103
L8102
L8101
Q8101
R8108
D8102
R8107
R8101
R8105
R8104
Q8102
R8109
C8103
R8103
C8102
R8106
C8101
R8102
D8104
FP8101
1
26
Q8103
R8110
L8104
C8109
C8107
R8120
TP8103
C8108
C8110
D8110
D8109
TP8102
C8111
TP8104
D8106
R8119
C8105
TP8101
R8111
R8118
Q8106
C8106
R8112
PbF
Q8105
R8116
R8113
Q8104
R8117
C8104
R8114
FP8102
D8108
R8115
R8125
R8122
R8126
R8123
R8124
Q8108
Q8107
R8121
24
LSJB8334
3
2
1
A
B
C

(DUAL PATTERNS)

(FOIL SIDE)


D8101
D8103
D8105
D8107
LSJB8334
3
2
1
A
B
C

(DUAL PATTERNS)

Parts Location

LCD BACKLIGHT P.C.B.					
Transisters			C8102	B-2	C
Q8101	A-3	C	C8103	B-3	C
Q8102	A-3	C	C8104	B-1	C
Q8103	A-2	C	C8105	B-2	C
Q8104	A-1	C	C8106	B-2	C
Q8105	B-2	C	C8107	B-2	C
Q8106	B-2	C	C8108	B-2	C
Test Points			C8109	B-2	C
TP8101	B-2	C	C8110	B-2	C
TP8102	B-2	C	Resistors		
TP8103	B-2	C	R8101	B-3	C
TP8104	C-2	C	R8102	B-2	C
TP8105	B-3	C	R8103	B-2	C
TP8106	A-3	C	R8104	B-3	C
Connectors			R8105	B-3	C
FP8101	C-3	C	R8106	B-2	C
FP8102	C-1	C	R8107	B-3	C
Diodes			R8108	B-3	C
D8101	C-3	F	R8109	A-3	C
D8103	C-2	F	R8110	B-2	C
D8105	C-2	F	R8111	A-2	C
D8107	C-1	F	R8112	B-2	C
D8109	B-2	C	R8113	B-1	C
D8110	B-2	C	R8114	B-1	C
Coils			R8115	B-1	C
L8101	B-3	C	R8116	B-1	C
L8102	B-3	C	R8117	B-1	C
L8103	B-3	C	R8118	B-2	C
L8104	B-2	C	R8119	B-2	C
Capacitors			R8120	B-2	C
C8101	B-2	C			

LCD BACKLIGHT P.C.B.
LSEP8334A1
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

MAIN PARTS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑦	Bottom Case Unit	❶	3(433), 2(519), 3(537)	1
2	㊿	Top Unit	❶	3(433), (519)	2
3	-	Side R Ass'y	❶	3(433), B1, FP8	3
4	-	R Shaft Case Unit & LCD Ass'y	❶	2(533), 3(537)	4
5	-	Lens Ass'y	❶	2(537), FP301, FP701	5
6	⑫ (E20)	EVF Unit Camera P.C.B.	❶	(537), FP9902 or FP9903 (For models with B/W EVF)	6
7	㉖ ㉗	Battery Case Unit Rear Unit	❶	2(540), FP10, P1001 2(433)	7
8	(51)	Front Case Unit	❶	2(433), (519), FP6	8
9	②	Cassette Cover Unit	❶	3(519), FP7001	9
10	(E10)	Main P.C.B.	❶	2(545), FP1, FP2, FP3, FP4, FP5	10
11	-	Mechanism Chassis Ass'y	❶	3(441), (24)	11

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

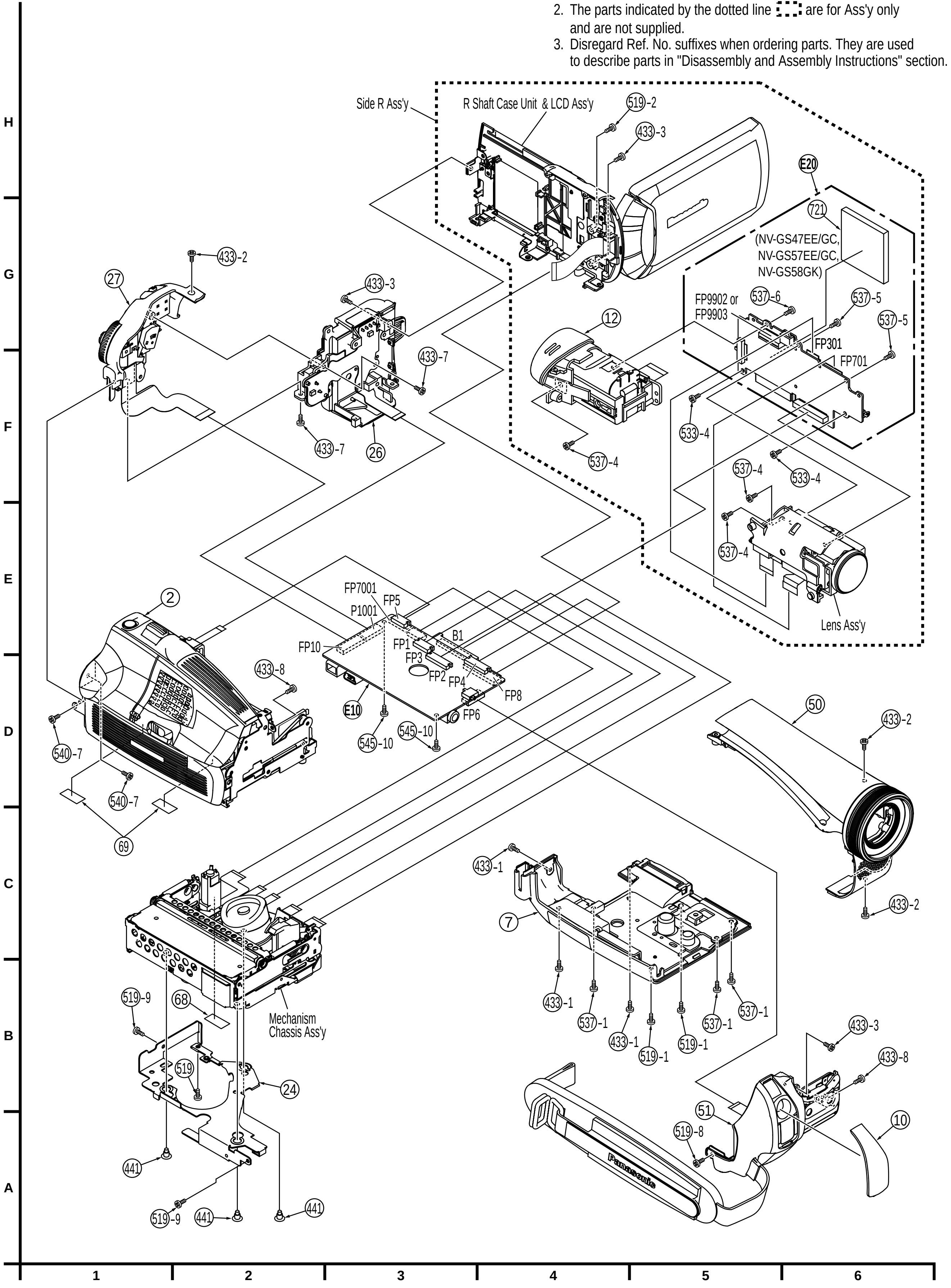
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❶ MAIN PARTS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



H
G
F
E
D
C
B
A
1
2
3
4
5
6
Side R Ass'y
R Shaft Case Unit & LCD Ass'y
519-2
433-3
E20
721
(NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK)
433-2
27
433-3
FP9902 or FP9903
537-6
537-5
537-5
12
FP301
FP701
433-7
433-7
26
533-4
537-4
537-4
533-4
537-4
Lens Ass'y
2
FP7001
FP5
P1001
FP10
B1
FP1
FP3
FP2
FP4
FP8
433-8
E10
545-10
545-10
FP6
540-7
540-7
69
50
433-2
433-2
433-1
7
433-1
537-1
433-1
519-1
519-1
537-1
537-1
519-9
68
Mechanism Chassis Ass'y
519
24
433-3
433-8
51
10
519-8
Panasonic
441
519-9
441
441

FRONT CASE PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(E30)	Front P.C.B.	❷	5(533)	11
2	(52)	**(For models with Light)** LED Light Lens	❷	-----	11
3	(56)	Front Case	❷	-----	-

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

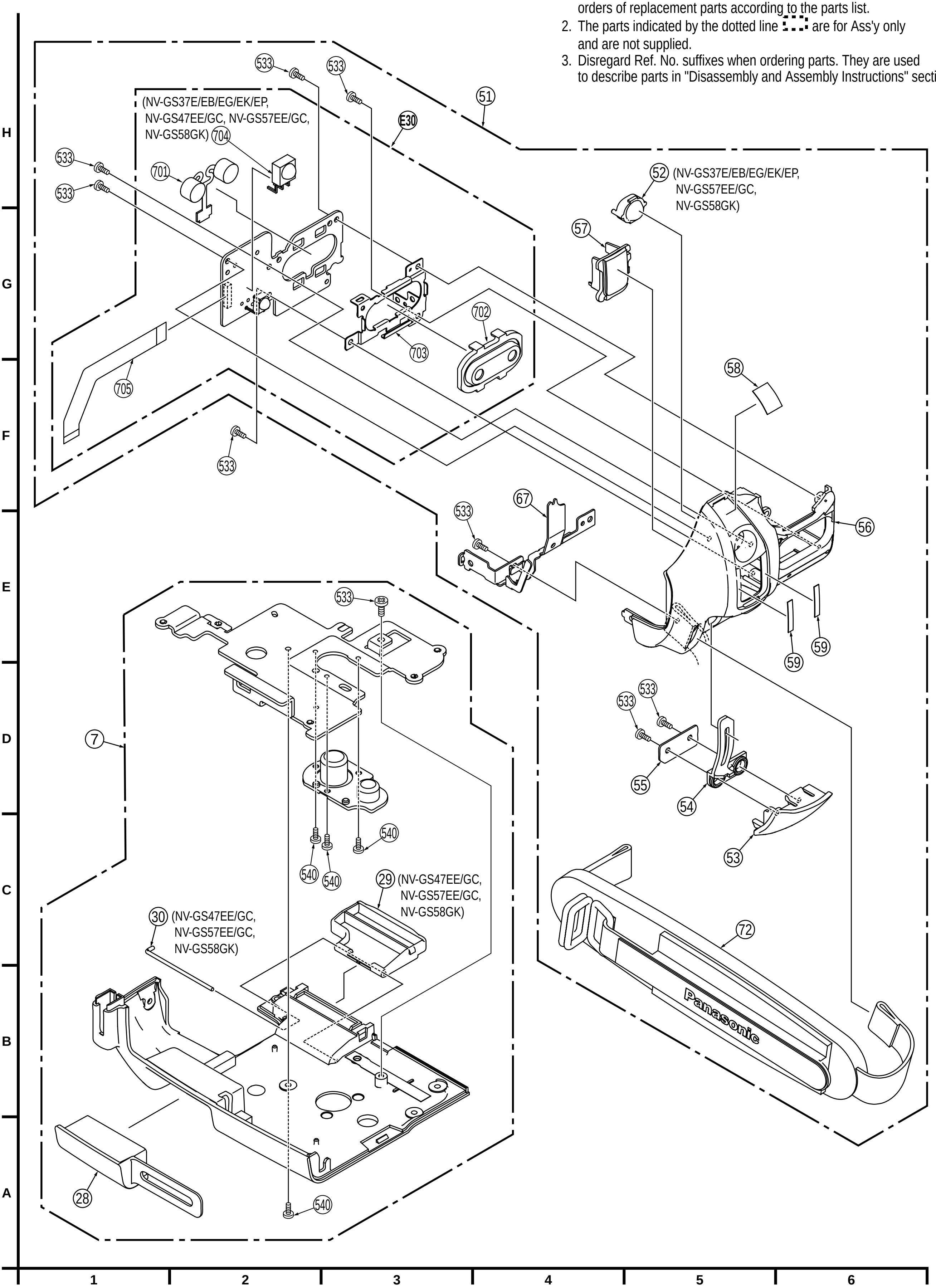
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❷ FRONT AND BOTTOM CASE SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
533
533
51
E30
(NV-GS37E/EB/EG/EK/EP,
NV-GS47EE/GC, NV-GS57EE/GC,
NV-GS58GK) 704
533
701
533
52 (NV-GS37E/EB/EG/EK/EP,
NV-GS57EE/GC,
NV-GS58GK)
57
702
703
705
58
533
533
67
56
533
59
59
533
533
7
55
54
540
53
540
540
29 (NV-GS47EE/GC,
NV-GS57EE/GC,
NV-GS58GK)
30 (NV-GS47EE/GC,
NV-GS57EE/GC,
NV-GS58GK)
72
Panasonic
28
540

R SHAFT CASE & LCD PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	㉝	LCD Case A Unit	❸	2(519), 8(L-1)	12
2	㉛	R Shaft Case Unit	❸	FP8101	12
3	(E40)	LCD Backlight P.C.B	❸	(533), (L-2), FP8102	13
4	㉞	LCD Case B	❸	4(L-3)	13
5	-	LCD Panel Ass'y	❸	7(L-4)	13
	㉟	LCD Shield Case Unit			

A B C D E F

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	㊷	LCD Panel	❸	-----	14
2	㊴	Reflect Sheet	❸	(L-5)	14
3	㊲	Lead Light Panel	❸	-----	14
4	㊳	Diffusion Sheet	❸	-----	14
5	㊵	BEF Sheet	❸	-----	14
6	㊶	BEF Sheet A	❸	-----	14
7	㊱	Panel Holder Unit	❸	-----	14

A B C D E F

How to read chart shown above:

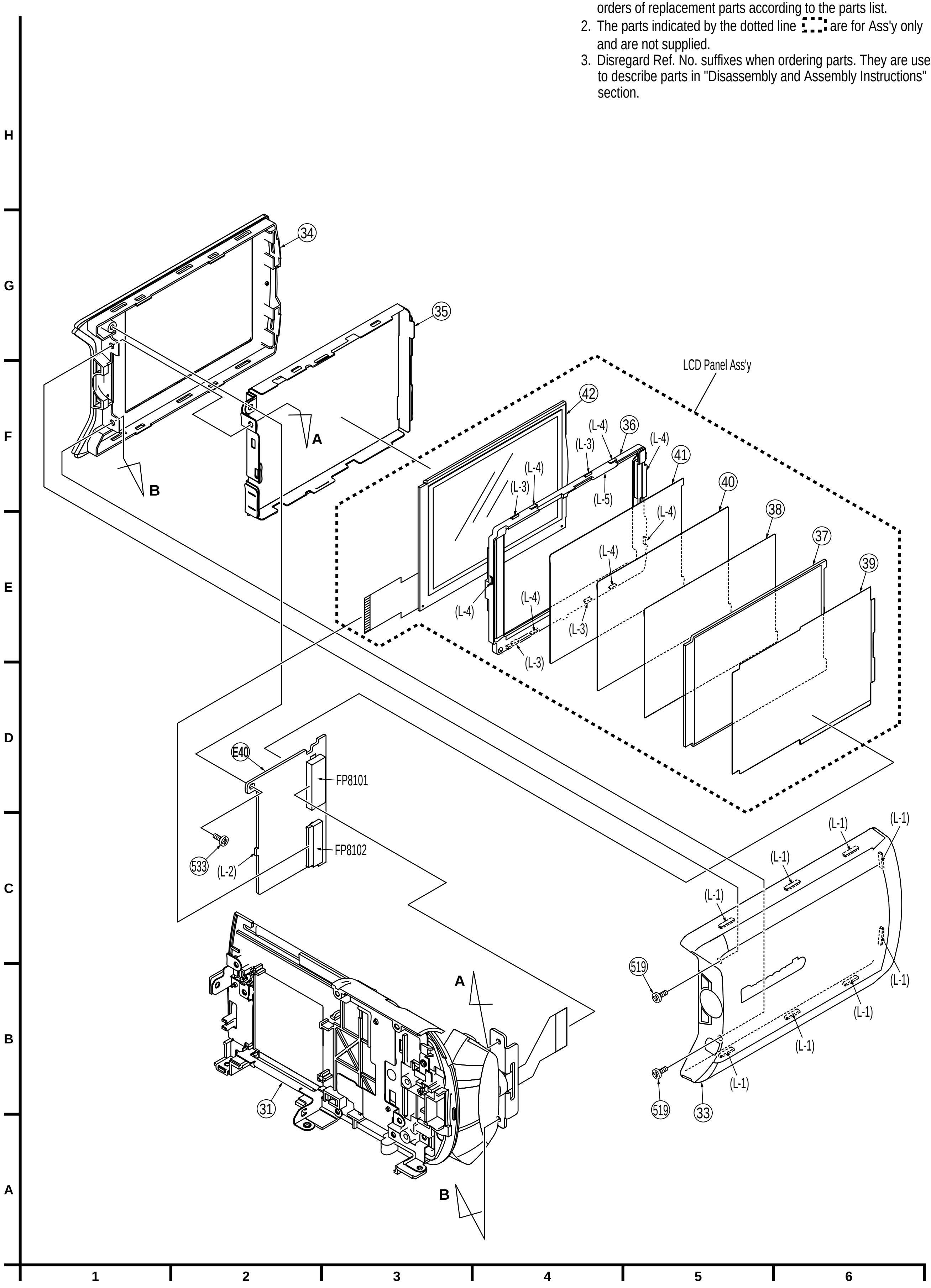
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❸ R SHAFT CASE UNIT AND LCD SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



H
G
F
E
D
C
B
A
1
2
3
4
5
6
㉞
㉟
LCD Panel Ass'y
㊷
(L-4)
㊱
(L-3)
(L-4)
㊶
(L-4)
(L-3)
(L-5)
㊵
(L-4)
㊳
(L-4)
㊲
㊴
(L-4)
(L-4)
(L-3)
(L-3)
A
B
(E40)
FP8101
FP8102
(533)
(L-2)
(L-1)
(L-1)
(L-1)
(L-1)
(519)
A
(L-1)
(L-1)
(L-1)
(L-1)
(519)
㉝
㉛
B

CCD & LENS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(E50)	CCD P.C.B	❹	2(536)	15
2	(64)	Filter Rubber	❹	-----	15
3	(63)	Optical Filter	❹	-----	15

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑨	Lens Cover	❹	2(537)	-
2	(65)	Zoom Motor Unit	❹	2(538),Unsolder	16
3	(66)	Focus Motor Unit	❹	2(538),Unsolder	16

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

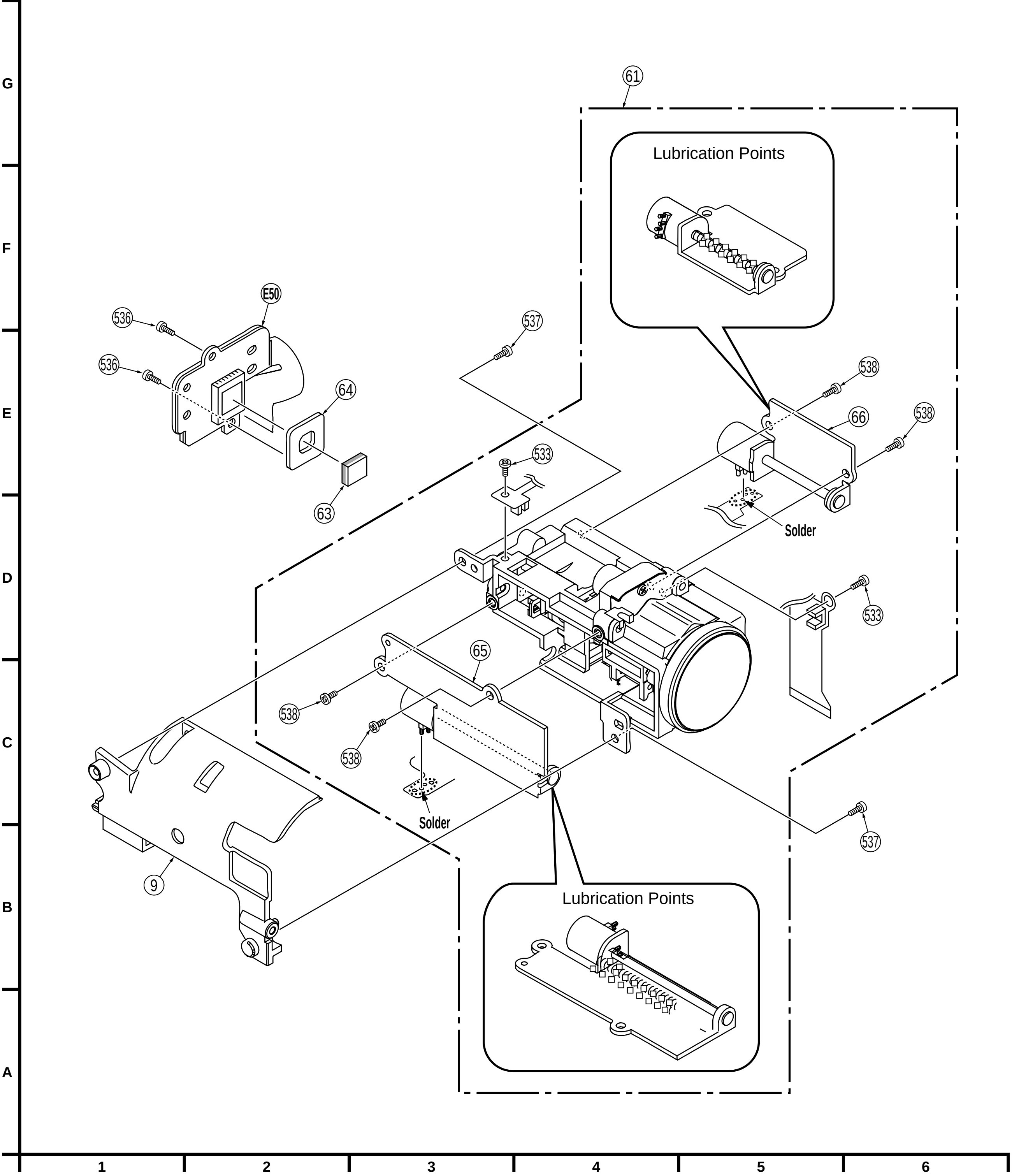
❹ CCD AND LENS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
□□□	Grease	Available from Factroy	LSUQ0050


H
G
F
E
D
C
B
A
61
Lubrication Points
E50
536
536
537
64
63
538
66
538
533
Solder
533
65
538
538
9
Solder
537
Lubrication Points
1
2
3
4
5
6

EVF PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑲	EVF Frame	❺	2(537)	17
2	⑯	EVF Slide Piece	❺	2(450)	17
3	⑬ ⑮	EVF Base Frame EVF Earth Plate	❺	2(L-1)	17
4	⑭	EVF Spring	❺	(450), (L-2)	18
5	⑰	EVF F.P.C.	❺	FP951 (For models with Color EVF) FP901 (For models with B/W EVF)	18

↑ ↑ ↑ ↑ ↑ ↑

A B C D E F

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑱	Eye Cap	❺	2(524)	19
2	㉓	EVF Lens Unit	❺	-----	20
3	㉒	Eye Sight Lever	❺	-----	20

↑ ↑ ↑ ↑ ↑ ↑

A B C D E F

How to read chart shown above:

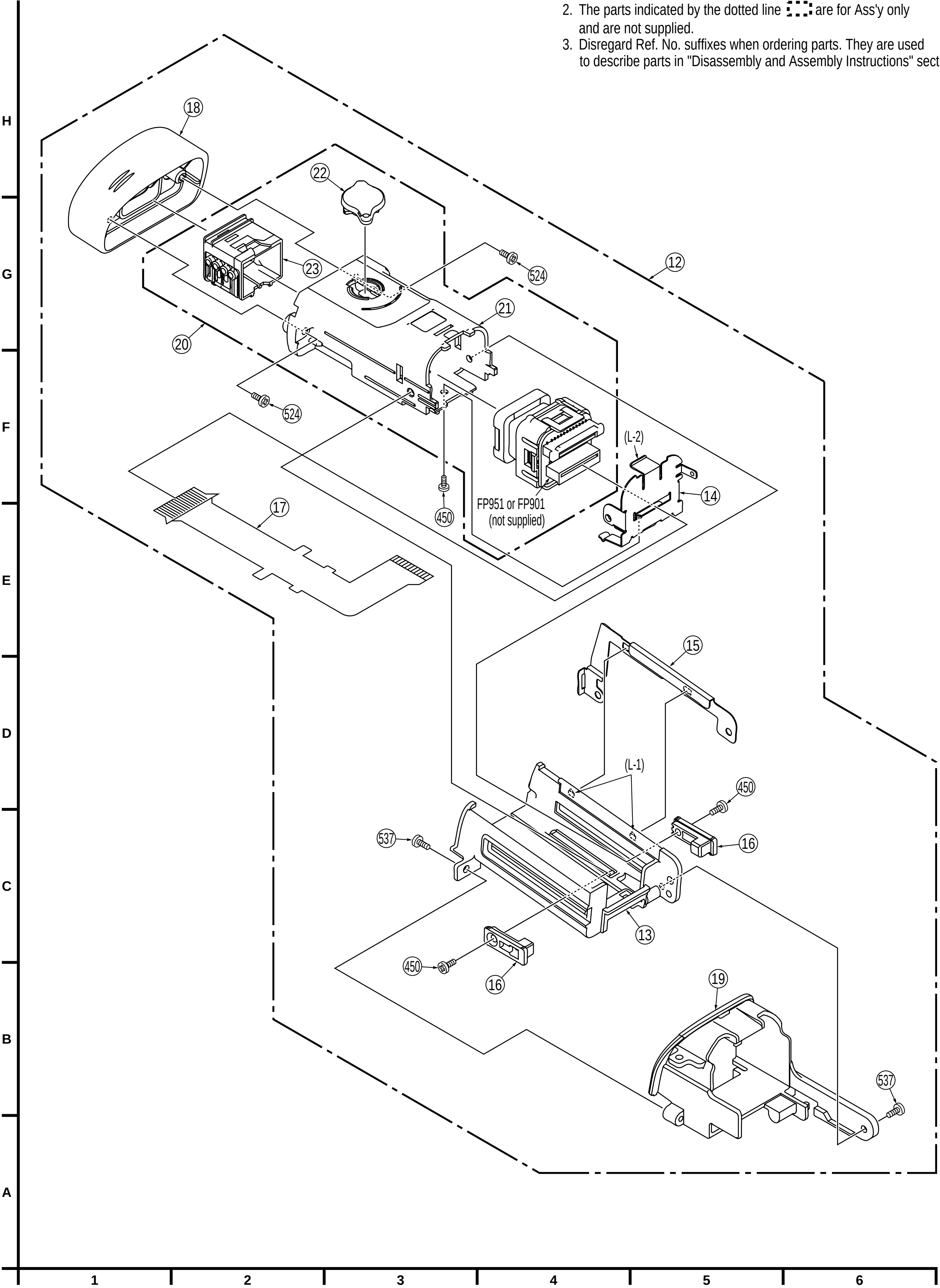
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❺ EVF SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
18
22
23
12
524
21
20
524
(L-2)
14
17
450
FP951 or FP901
(not supplied)
15
(L-1)
450
537
16
13
450
16
19
537

Notes in chart

1. **Removal of Bottom Case Unit**
    1) Remove the 8 Screws (433, 519, 537)
    2) Release the Hand Strap from the plate and remove the Bottom Case Unit.

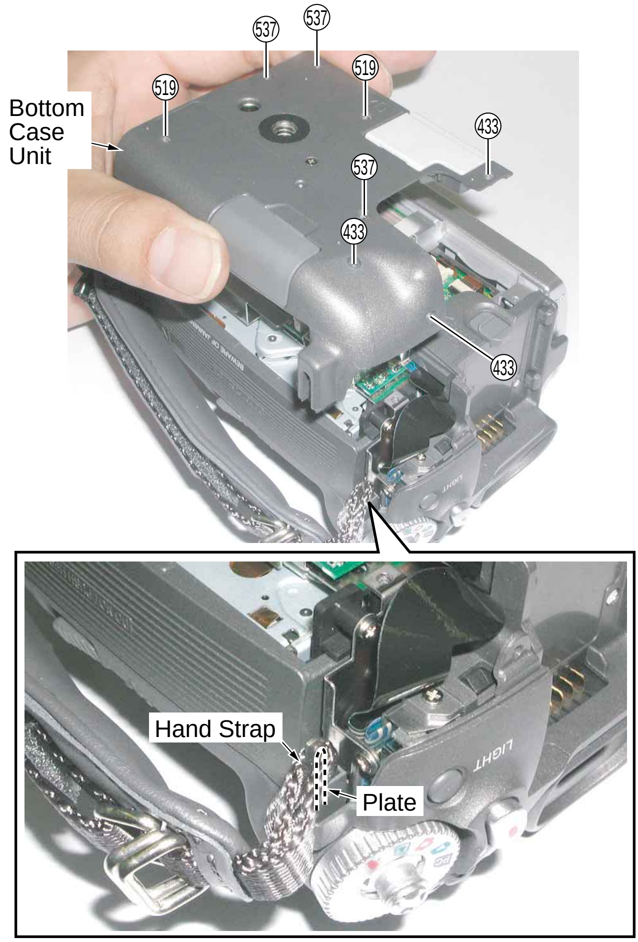

537
537
519
519
Bottom Case Unit
433
537
433
433
Hand Strap
Plate

Fig. D1

2. **Removal of Top Unit**
    1) Open the LCD and remove the 4 Screws (433, 519).
    2) Pull and slide the Top Unit carefully.

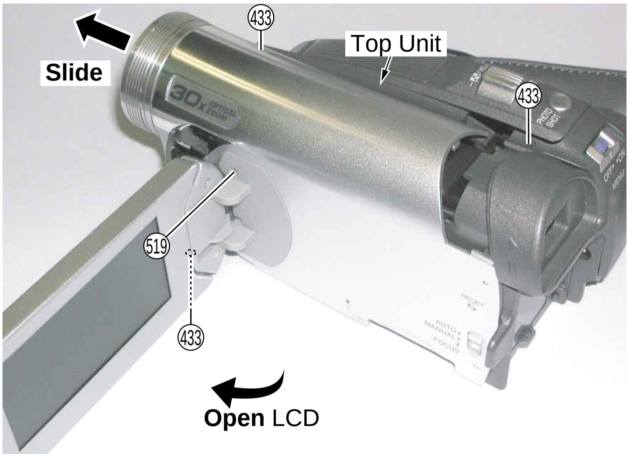
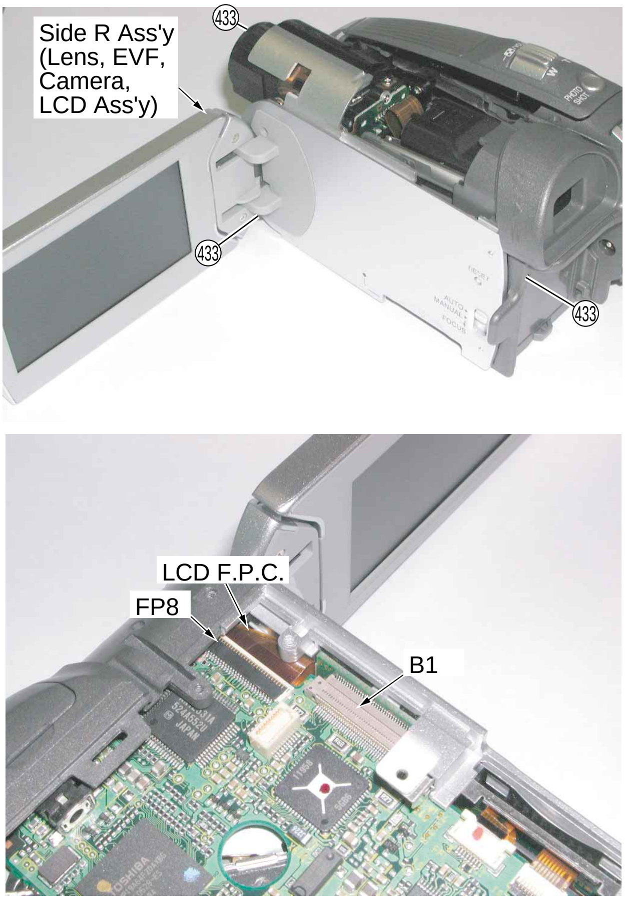

433
Slide
Top Unit
433
519
433
Open LCD

Fig. D2

3. **Removal of Side R Ass'y**
    1) Remove the 3 Screws (433).
    2) Disconnect the F.P.C. from Connector FP8.
    3) Remove the Side R Ass'y (Connector B1 is disconnected).


Side R Ass'y (Lens, EVF, Camera, LCD Ass'y)
433
433
433
LCD F.P.C.
FP8
B1

<Bottom View>

Fig. D3

4. **Removal of R Shaft Case Unit & LCD Ass'y**
   Take care not to damage the LCD open/close Switch.
   1) Remove the 5 Screws (533, 537), and remove the R Shaft Case Unit & LCD Ass'y.

   Installation of R Shaft Case Unit & LCD Ass'y
   1) Install the R Shaft Case Unit & LCD Ass'y so that the tab is inserted into slot.
   2) Tighten 5 Screws (533, 537).

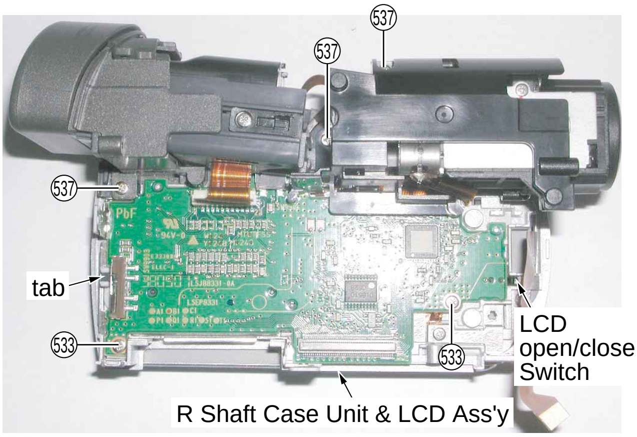

537
537
537
tab
533
533
LCD open/close Switch
R Shaft Case Unit & LCD Ass'y

Fig. D4

5. **Installation of Lens Ass'y**
   Take care not to damage the motor leads.
   1) Install the Lens Ass'y with the 3 bosses and 2 Screws (537).
   2) Connect the F.P.C.s to Connector FP701 and FP301, then place the sheet on Connector FP301.

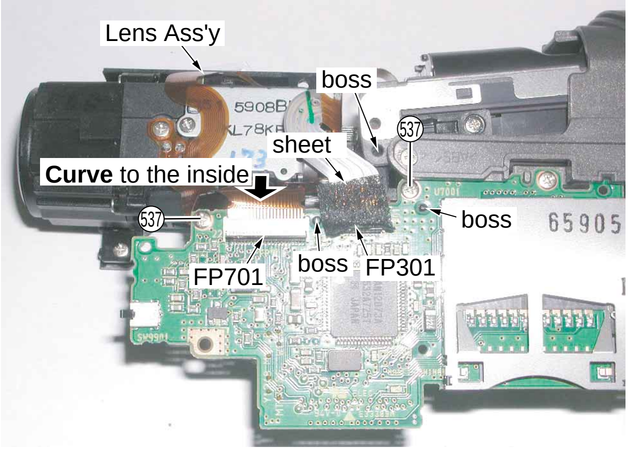
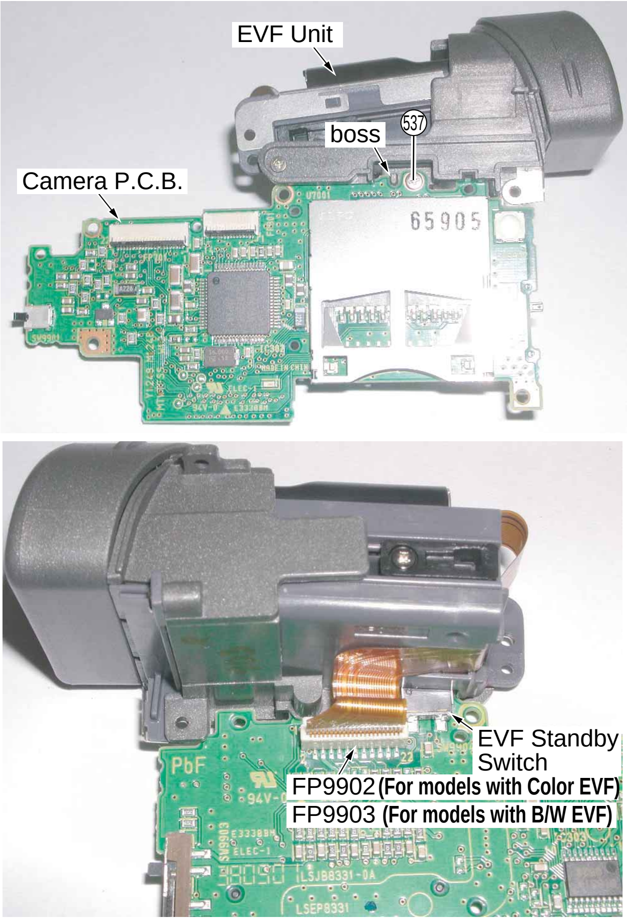

Lens Ass'y
boss
537
sheet
Curve to the inside
537
boss
FP701
boss
FP301

Fig. D5

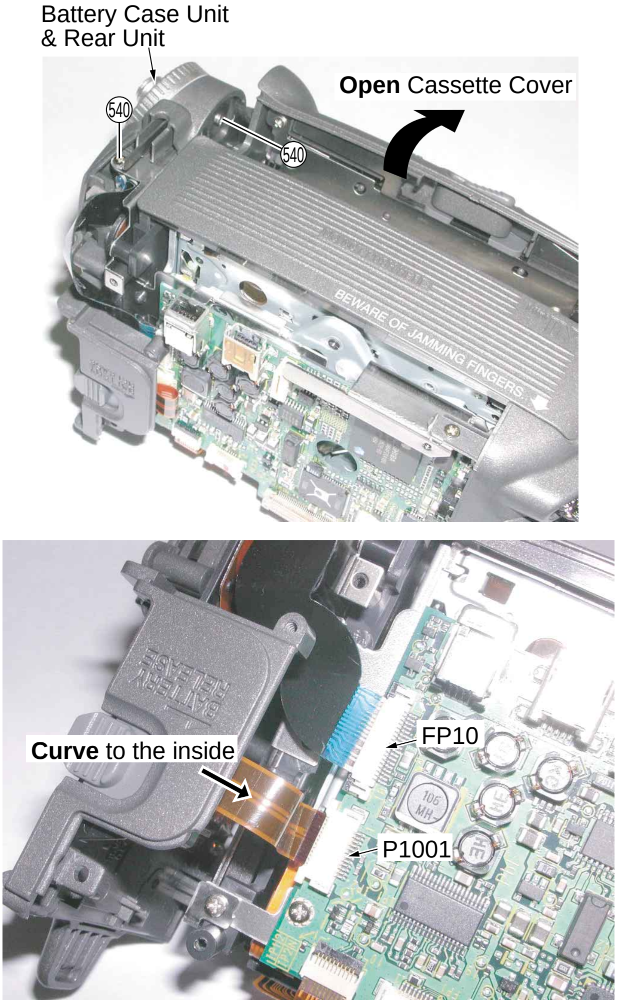
6. **Installation of EVF Unit, Camera P.C.B.**
   Take care not to damage the EVF standby Switch.
   1) Install the EVF Unit with the boss and Screw (537).
   2) Connect the F.P.C. to Connector FP9902 or FP9903 **(For models with B/W EVF)**.


EVF Unit
boss
537
Camera P.C.B.
EVF Standby Switch
FP9902 **(For models with Color EVF)**
FP9903 **(For models with B/W EVF)**

<Foil Side>
Fig. D6

7. Removal of Battery Case Unit & Rear Unit

1) Open the Cassette Cover and remove the 2 Screws (540).
2) Disconnect the F.P.C.s from Connectors FP10 and P1001.


Battery Case Unit
& Rear Unit
540
540
Open Cassette Cover
BEWARE OF JAMMING FINGERS.
Curve to the inside
FP10
P1001

<Bottom View>

Fig. D7

Installation of Battery Case Unit, Rear Unit

1) Remove the 2 Screws (433).

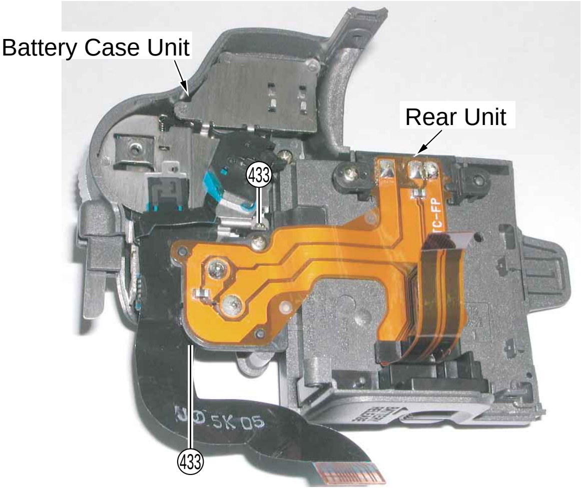
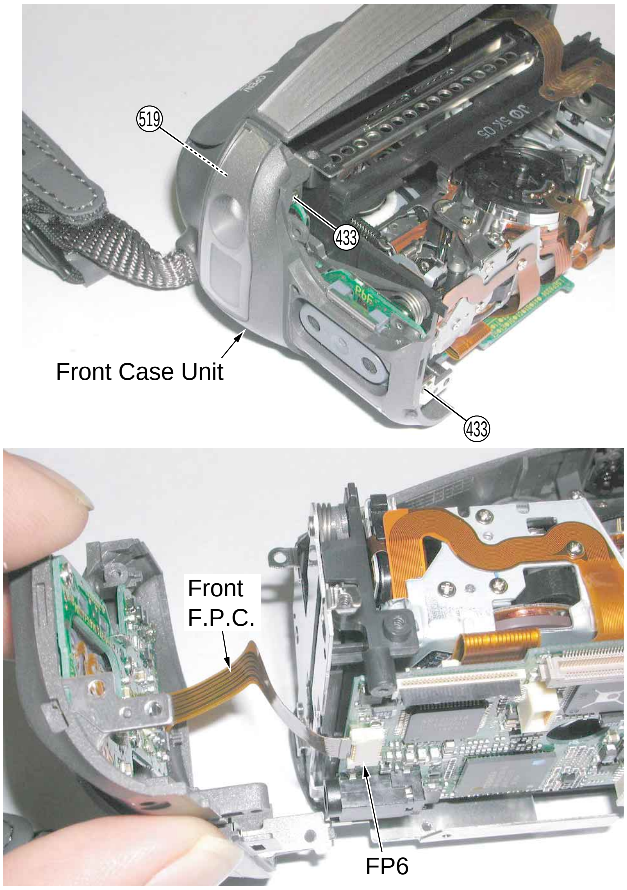

Battery Case Unit
Rear Unit
433
433

Fig. D8

8. Removal of Front Case Unit

1) Remove the 3 Screws (433, 519).
2) Disconnect the Front F.P.C. from Connector FP6.


519
433
Front Case Unit
433
Front
F.P.C.
FP6

<Bottom View>

Fig. D9

9. Removal of Cassette Cover Unit

1) Remove the 3 Screws (519).
2) Disconnect the F.P.C. from Connector FP7001.
3) Pull off the Mechanism Ass'y & Main P.C.B.

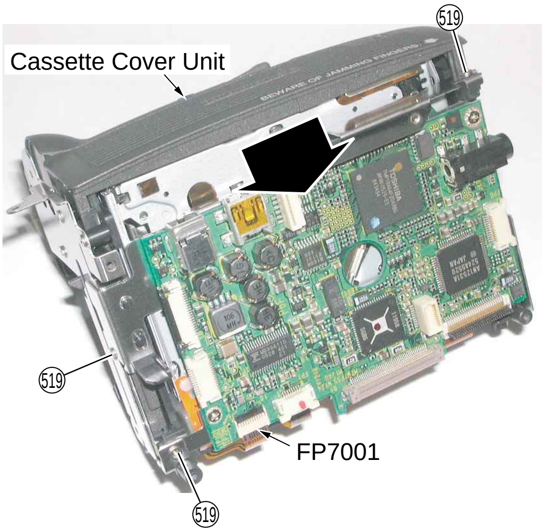
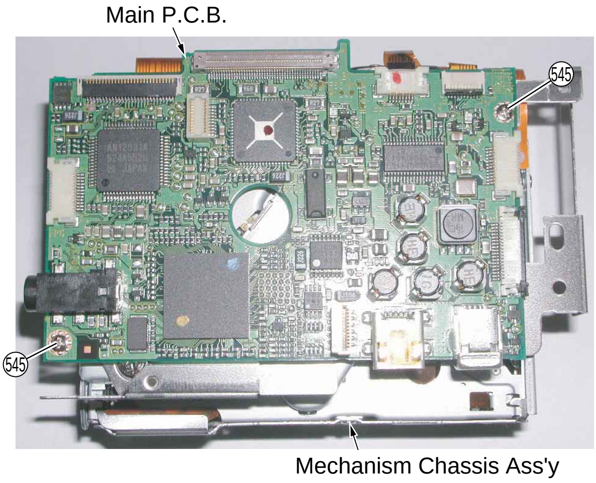

519
Cassette Cover Unit
519
FP7001
519

Fig. D10

10. Installation of Main P.C.B.

Take care not to damage the F.P.C.s.

1) Connect the F.P.C.s to the connectors on the Main P.C.B., verifying that the direction of the Flexible Cables is correct. Refer to "REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR."
2) Tighten the 2 Screws (545).
3) After installing the Main P.C.B, confirm the F.P.C.s are positioned as shown.


Main P.C.B.
545
545
Mechanism Chassis Ass'y

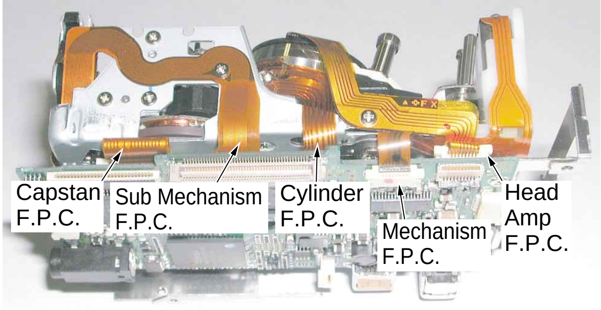

Capstan F.P.C.
Sub Mechanism F.P.C.
Cylinder F.P.C.
Mechanism F.P.C.
Head Amp F.P.C.

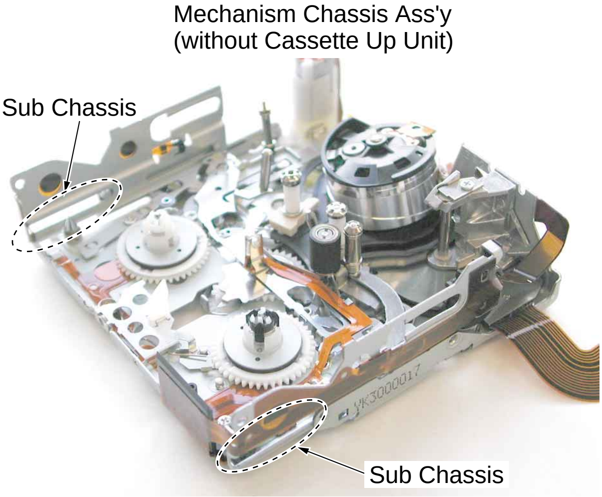
Fig. D11-1

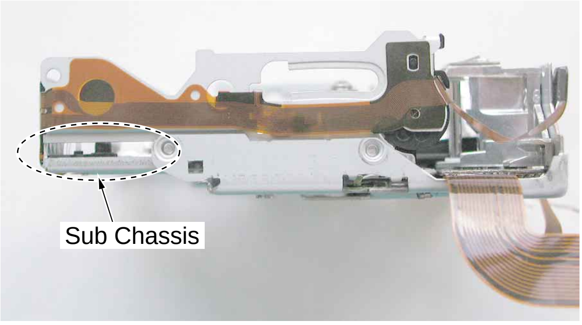
Replacement of Mechanism Chassis Ass'y

When replacing the Main Chassis Ass'y or the Cylinder Unit, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

Mechanism Chassis Ass'y Handling Caution

When servicing the Mechanism Chassis Ass'y without the Cassette Up Unit, do not handle the Sub Chassis of the Mechanism Chassis Ass'y.


Mechanism Chassis Ass'y
(without Cassette Up Unit)
Sub Chassis
Sub Chassis


Sub Chassis

<Side View>
Fig. D11-2

11. Installation of Front P.C.B.

1) Install the LED Light Lens **(For models with Light)** into the Front Case Unit.
2) Install the Front P.C.B. with the 5 or 7 **(For models with Light)** bosses and the 5 Screws (533).

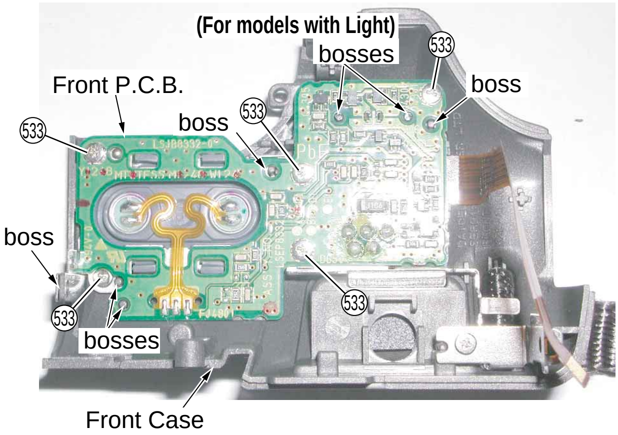

(For models with Light)
bosses
(533)
boss
Front P.C.B.
(533)
boss
(533)
boss
(533)
(533)
bosses
Front Case

Fig. D12

12. Removal of R Shaft Case Unit, LCD Case A Unit

1) Open and rotate the LCD to access the 2 Screws (519) as shown below.
2) Release the 8 Locking Tabs (L-1) and remove the LCD Case A Unit.
3) Disconnect the F.P.C. from Connector FP8101.
4) Remove the R Shaft Case Unit.

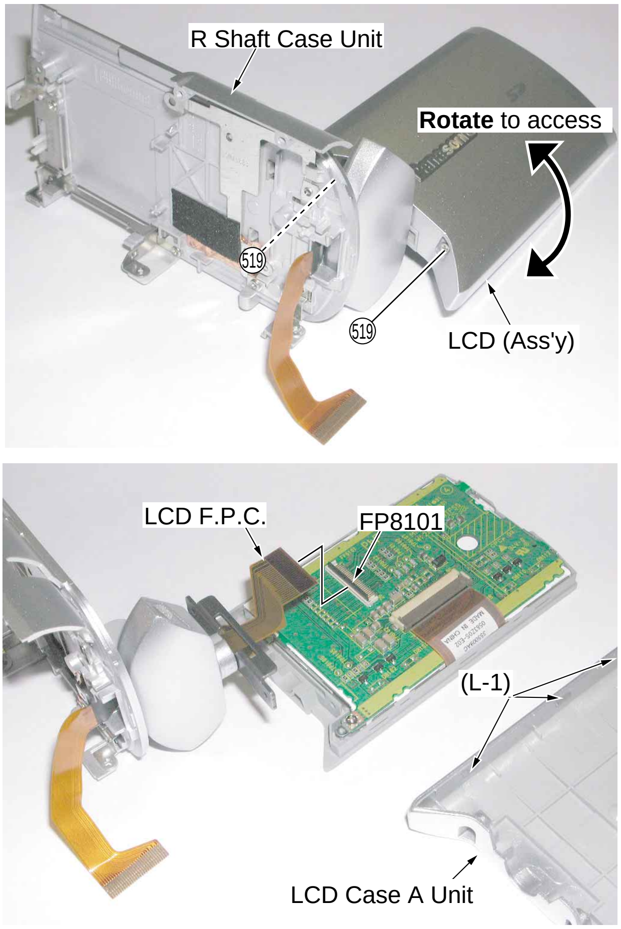

R Shaft Case Unit
Rotate to access
(519)
(519)
LCD (Ass'y)
LCD F.P.C.
FP8101
(L-1)
LCD Case A Unit

Fig. D13

13. Installation of LCD Backlight P.C.B., LCD Panel Ass'y, LCD Shield Case Unit and LCD Case B

Use extreme care regarding LEDs when handling the LCD Backlight P.C.B.

Install in order shown below.

1) Install the LCD Panel Ass'y onto the LCD Shield Case Unit with the 7 Locking Tabs (L-4) while carefully bending the LCD F.P.C. at its base so as not to damage it.
2) Install the LCD Shield Case into the LCD Case B with the 4 Locking Tabs (L-3).
3) Install the LCD Backlight P.C.B. onto the LCD Panel Ass'y with the Locking Tab (L-2).
4) Tighten the Screw (533) while keeping the LCD Backlight P.C.B. pressed toward the right. Then, connect the F.P.C. to Connector FP8102.

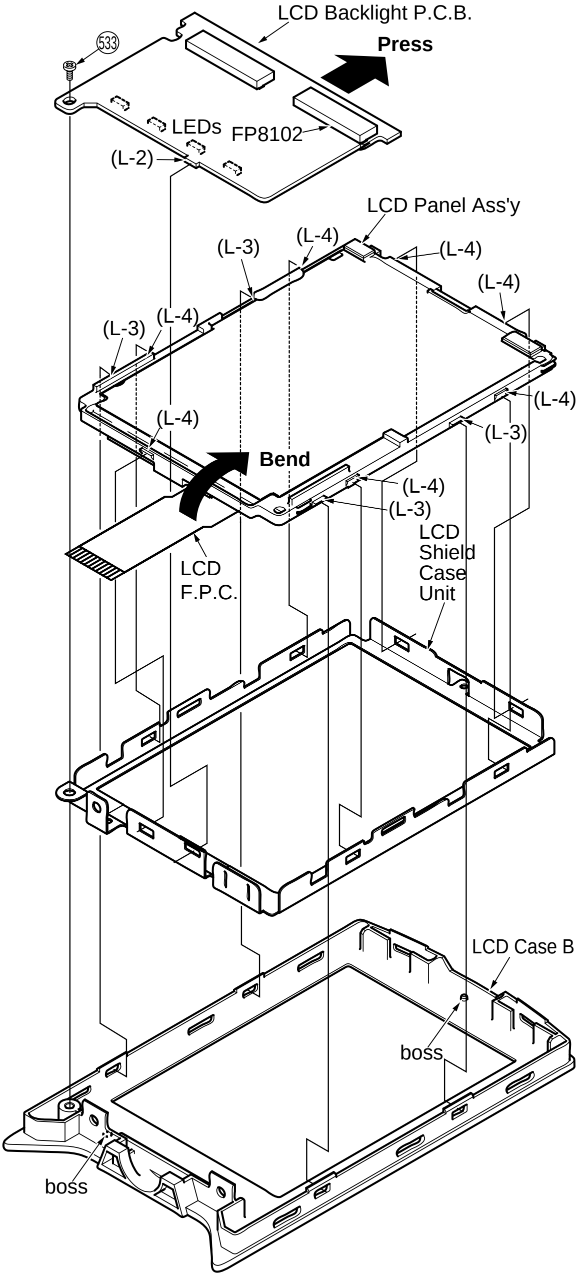

LCD Backlight P.C.B.
533
Press
LEDs
FP8102
(L-2)
LCD Panel Ass'y
(L-3)
(L-4)
(L-4)
(L-4)
(L-3)
(L-4)
(L-4)
(L-4)
(L-3)
Bend
(L-4)
(L-3)
LCD Shield Case Unit
LCD F.P.C.
LCD Case B
boss
boss

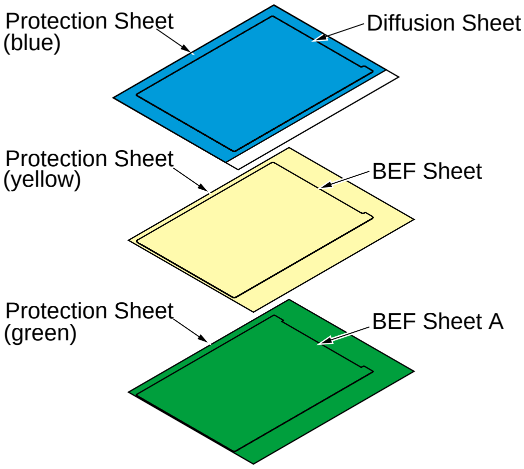
Fig. D14a

14. Installation of LCD Panel, Reflect Sheet, Lead Light Panel, Diffusion Sheet, BEF Sheet, BEF Sheet A and Panel Holder Unit

a. When replacing the LCD Panel, the Diffusion Sheet, the BEF Sheet and the BEF Sheet A, make sure to remove the Protection Sheets.

To distinguish Sheets from attached Protection Sheet:

- A blue Protection Sheet is affixed to both faces of the Diffusion Sheet.
- A yellow Protection Sheet is affixed to both faces of the BEF Sheet.
- A green Protection Sheet is affixed to both faces of the BEF Sheet A.


Protection Sheet (blue)
Diffusion Sheet
Protection Sheet (yellow)
BEF Sheet
Protection Sheet (green)
BEF Sheet A

b. Use extreme care when handling the LCD Panel, the Reflect Sheet, the Lead Light Panel, the Diffusion Sheet, the BEF Sheet and the BEF Sheet A to avoid damage, dust, and spots (especially fingerprints, etc.)

Install in order shown below.

1) Install in order, the BEF Sheet A, BEF Sheet and Diffusion Sheet while inserting the corners of each sheet into the slots of the Panel Holder Unit.
2) Install the Lead Light Panel while inserting the corners into the slots of the Panel Holder Unit.
3) Place the Reflect Sheet so it is aligned with the edge of the Panel Holder Unit, then install it using the adhesive tape portions of the Reflect Sheet.

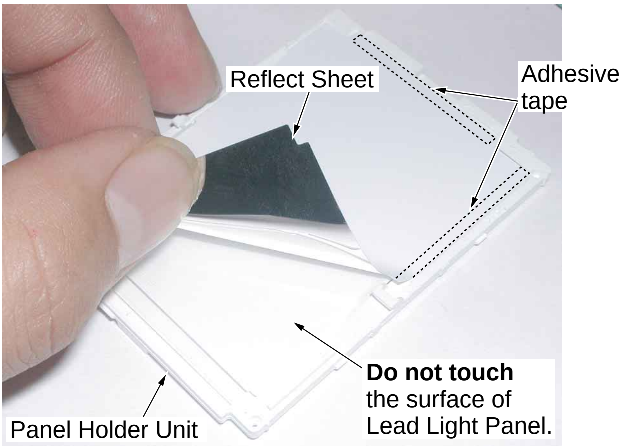

Reflect Sheet
Adhesive tape
Do not touch the surface of Lead Light Panel.
Panel Holder Unit

Fig. D15-1a

4) Install the LCD Panel with adhesive tape so that the cross marks are positioned in the center of the holes in the Panel Holder Unit.

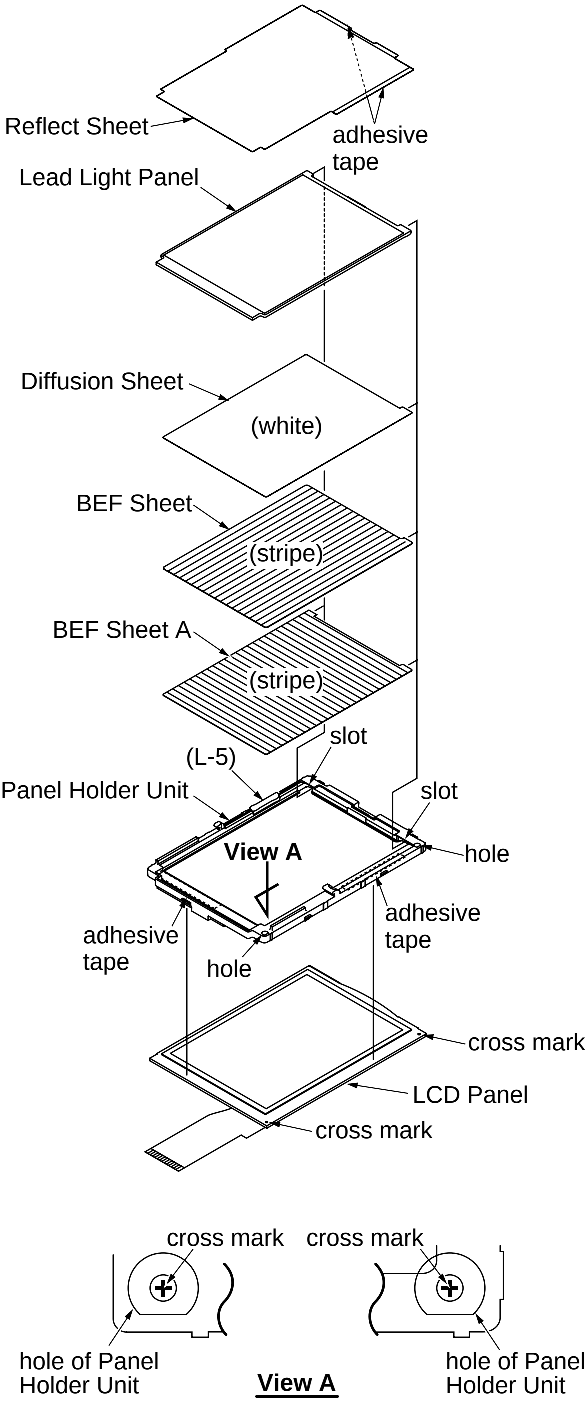

Reflect Sheet
adhesive tape
Lead Light Panel
Diffusion Sheet
(white)
BEF Sheet
(stripe)
BEF Sheet A
(stripe)
slot
(L-5)
Panel Holder Unit
slot
View A
hole
adhesive tape
adhesive tape
hole
cross mark
LCD Panel
cross mark
cross mark
cross mark
hole of Panel Holder Unit
View A
hole of Panel Holder Unit

Fig. D15-2a

15. Removal of CCD P.C.B., Filter Rubber and Optical Filter

CAUTION:

1) When removing the CCD P.C.B., take care that the Optical Filter does not fall out.
2) Use extreme caution when removing the CCD P.C.B. as it is easily damaged by static electricity. Use a Wrist Strap while removing and installing.
3) Do not touch the CCD window surface.

Installation of CCD P.C.B., Filter Rubber and Optical Filter

Install in order shown below.

1) Install the Optical Filter correctly.
   Note: Make sure that no dust gets on the Optical Filter or in the Lens Unit. Clean the Optical Filter with lens cleaning paper dampened with lens cleaner if necessary.
2) Install the Filter Rubber on the Optical Filter correctly as shown below.
   Note: Make sure that no dust gets on the Filter Rubber.
3) Install the CCD P.C.B. into the Lens Unit. Then, tighten the 2 Screws (536).
   Note: Do not touch the Lens Surface. Clean the surface with lens cleaning paper dampened with lens cleaner if necessary.

16. Installation of Zoom Motor Unit/Focus Motor Unit

Install the Zoom Motor Unit/Focus Motor Unit so that the Shaft of the Zoom Motor Unit/Focus Motor Unit is set in the Holder.

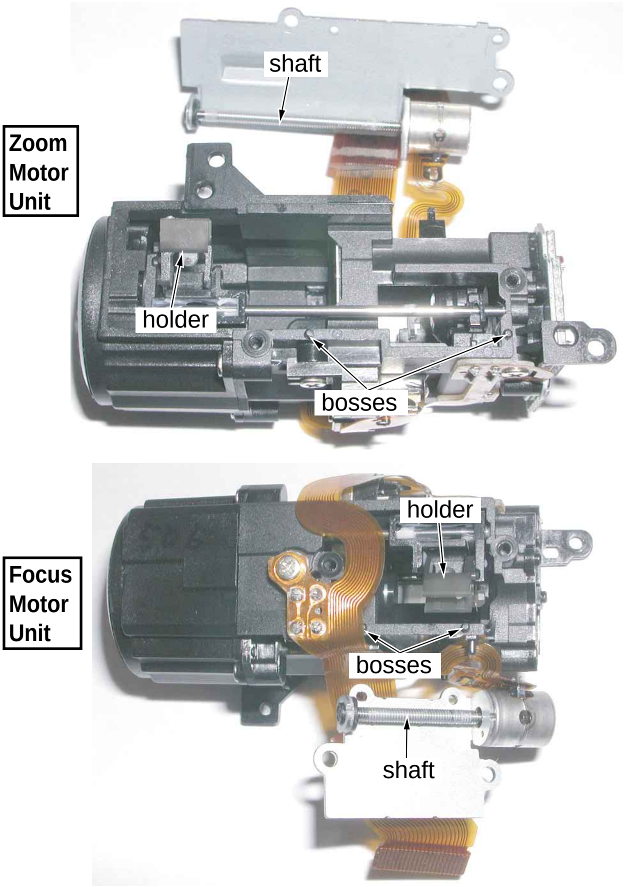
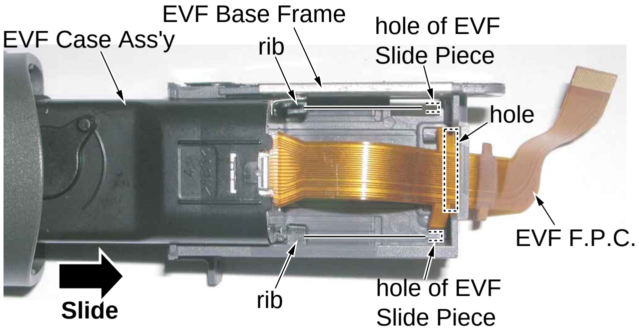

shaft
Zoom Motor Unit
holder
bosses
holder
Focus Motor Unit
bosses
shaft

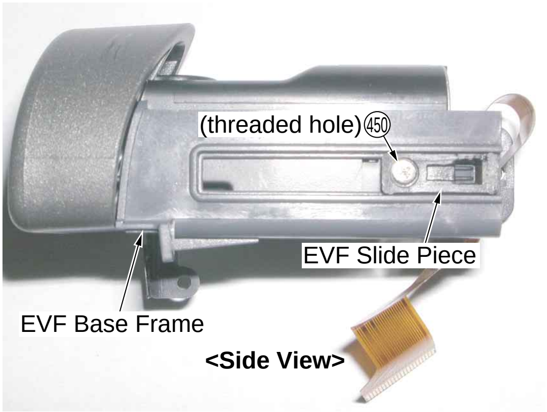
Fig. D16

17. Installation of EVF Slide Piece, EVF Base Frame and EVF Frame

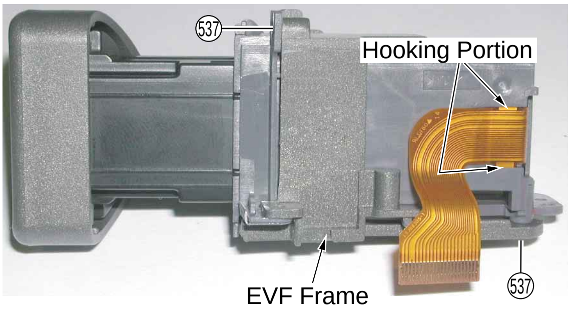
1) Pass the EVF F.P.C. through the EVF Base Frame hole.
2) Install the EVF Slide Pieces into the EVF Base Frame from both sides.
3) Slide the EVF Case Ass'y to the end so that the ribs are inserted into the holes of the EVF Slide Pieces.
4) Locate the threaded holes, and tighten the 2 Screws (450).
5) After installing, confirm the EVF moves correctly.
6) Install the EVF Frame with the 2 Screws (537).
7) Hook both sides of the F.P.C. to the EVF Base Frame.


EVF Base Frame
EVF Case Ass'y
rib
hole of EVF Slide Piece
hole
EVF F.P.C.
Slide
rib
hole of EVF Slide Piece

<Top View>


(threaded hole) (450)
EVF Slide Piece
EVF Base Frame

<Side View>


(537)
Hooking Portion
EVF Frame
(537)

<Bottom View>

Fig. D17

18. **Installation of EVF Spring, EVF F.P.C.**
   1) Insert the EVF F.P.C. into the EVF Spring hole paying particular attention to the direction.
   2) Connect the EVF F.P.C. to Connector FP951 or FP901 **(For models with B/W EVF)**.
   3) Insert the Locking Tab (L-2) at first, then fit the EVF Spring in the EVF Case and tighten the Screw (450).

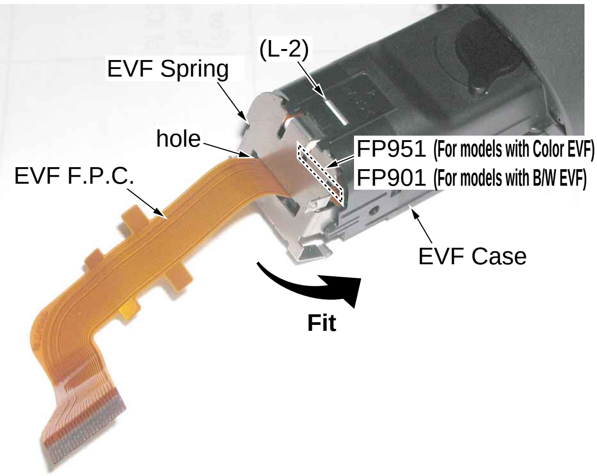

(L-2)
EVF Spring
hole
FP951 (For models with Color EVF)
FP901 (For models with B/W EVF)
EVF F.P.C.
EVF Case
Fit

Fig. D18

19. **Removal of Eye Cap**
   Remove the Eye Cap after removing the 2 Screws (524).

20. **Handling cautions of EVF Lens Unit**
   Use extreme care when handling the EVF Lens Unit to avoid damage, dust, and spots (especially fingerprints, etc.)

   Installation of EVF Lens Unit, Eye Sight Lever
   1) Install the Eye Sight Lever into the EVF Case hole in the direction shown.
   2) Install the EVF Lens Unit into the EVF Case.
   3) After installing, confirm the Eye Sight Lever and the EVF Lens Unit work together correctly.

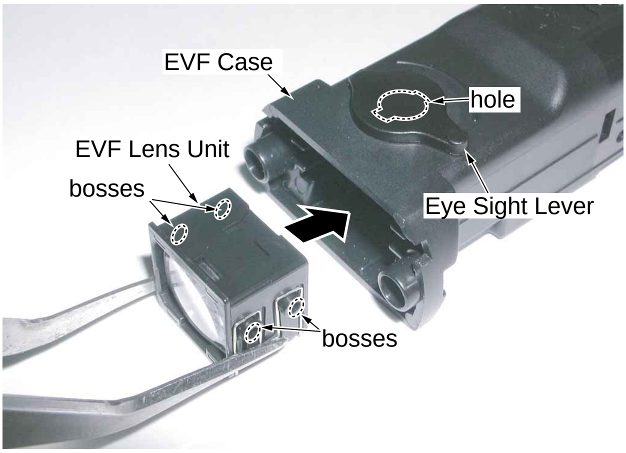

EVF Case
hole
EVF Lens Unit
bosses
Eye Sight Lever
bosses

Fig. D19

1. **Important safety notice**

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

2. Do not use the part numbers shown on these drawings for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information

   ○ : Test point with no test pin.

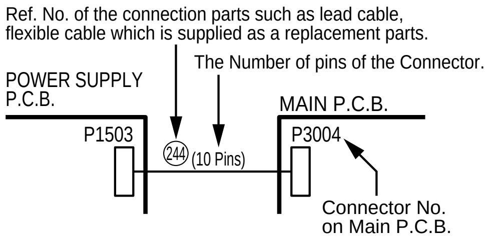
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltages of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V)......Zener Voltage

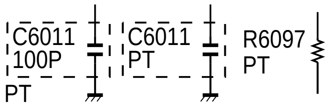
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to (its counter part). Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between two P.C.B.s are shown below.


Ref. No. of the connection parts such as lead cable,
flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
POWER SUPPLY
P.C.B.
MAIN P.C.B.
P1503
244
(10 Pins)
P3004
Connector No.
on Main P.C.B.

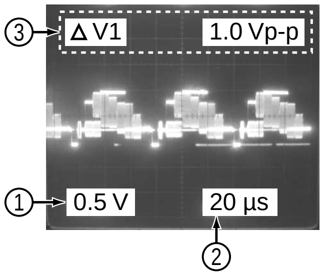
3. Parts marked "PT" are not used in any models included in this service model.

Example:


C6011
100P
PT
C6011
PT
R6097
PT

Signal Waveform Note

How to read Signal Waveform


③
Δ V1
1.0 Vp-p
①
0.5 V
20 µs
②

① Volts/Div
② Time/Div
③ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement

a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layouts show components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layouts include components which are not used.

Model Number Indication

Model numbers are indicated without "NV-GS."